UPDATE!

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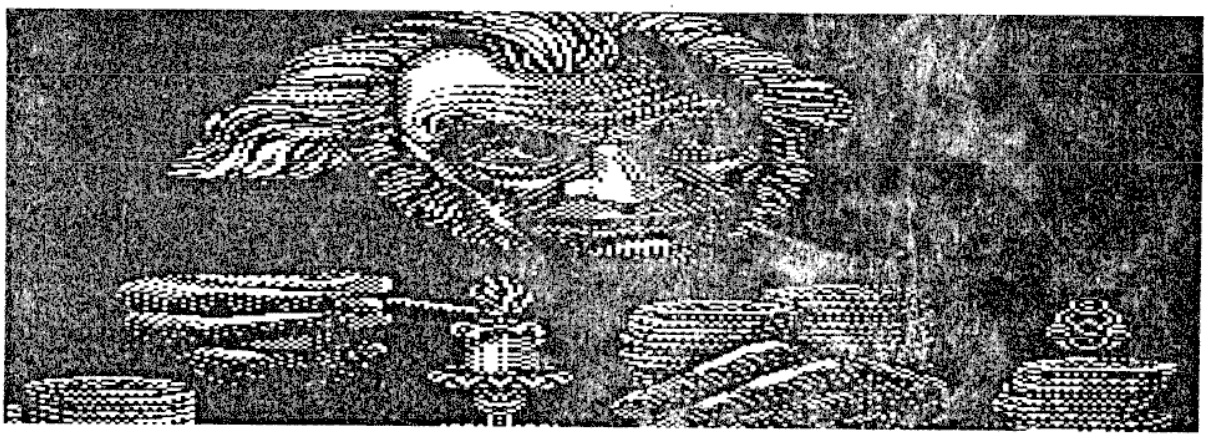

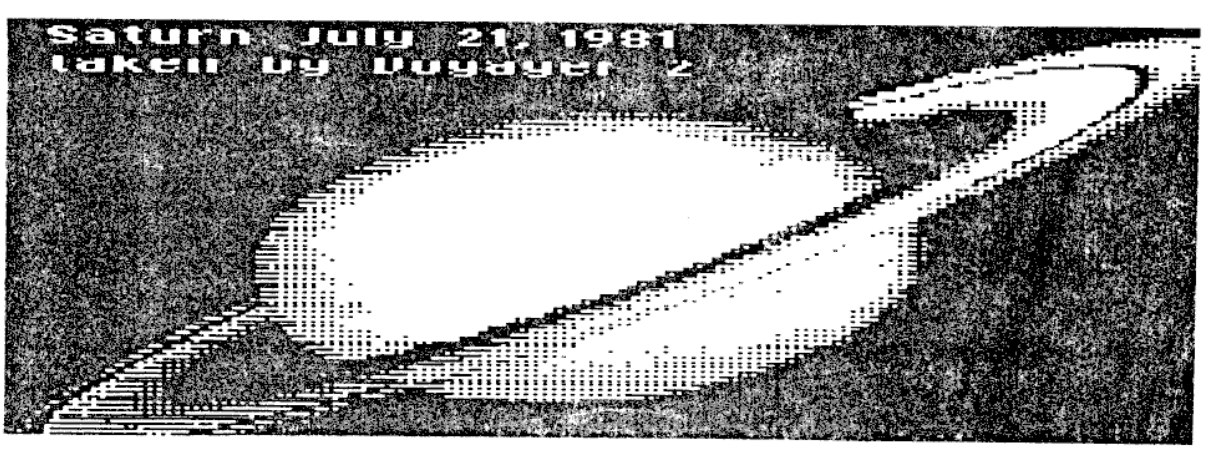

* UPDATE COMPUTER SYSTEMS *

UPDATE COMPUTER SYSTEMS is Edited and Published by Carol and Frank Davis of P.O. Box 1095, Peru, Indiana 46970. Phone number is 317-473-8031, with normal phone hours being between 5 P.M. and 9:30 P.M. Standard Time during the week and noon to 6 P.M. on weekends. When we are not there or unavailable, please leave a message with our answering machine, you'll be answered by mail

* * *

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The magazine is published on a quarterly basis in the months of October, January, April and July. All subscriptions begin and end at the same time...first issue being October and all renewals coming due after receipt of the July issue. The cost is $18.00 U.S. for a one year subscription for North America, and for those outside of this area $20.00 U.S. We accept personal and business checks, money orders, and Cash. We do not accept credit cards at this time, due to costs. Back issues, where available can be obtained from us, at excellent prices.

* * *

Assistance in Publishing this magazine is provided by Eliad P. Wannum, poet, computer user and all round good guy. The magazine is made possible by the regular contributors such as Paul Holmgren, Bill Cable, Andy Hradesky, Bob Hartung to name a few, and by the many contributions of other writers and programmers. Your contributions to this magazine are welcome. This is truly a magazine BY THE USER AND FOR THE USER OF SINCLAIR, TIMEX AND CAMBRIDGE COMPUTERS. When we cover other operating systems such as CPM or MSDOS it will be in a relationship to our computers, or emulators for our systems to run their software. We primarily cover disk based systems and software for the TS2068, Spectrum, QL, Z88...and will cover items on the TS1000 if disk drive based, or in relationship to using it with the above mentioned computers. We do accept reviews of peripherals that are useable by our systems, such as scanners, printers, modems, etc. Submissions should be on disk or hard copy (two copies and at least NLQ, no draft mode). If there is artwork, please let us know in what order it should be used, and provide it as a saved screen or hard copy screen dump. The format is very relaxed. Just pay attention to the width of the pages and allow 3/4 inch top and bottom, and make the left and right margins wide enough to accomodate a 3 hole punch that does not cut out some of the text. We have enlarge and reduction capacity to adjust a page, but may lose some print legibility in the process. Most important is legibility. Draft quality dot matrix does not reproduce well. Print size preference is ELITE 12 CPI. PICA 10 CPI is okay also, but please no condensed print. Please do not make programs submitted on cassette tape under any circumstance; disk or hardcopy only. Exceptions to this would be on the wafers from the Rotronics Wafadrive for the Spectrum. Z88 programs on disk may be in either IBM or QL format or hardcopy. TS2068 programs may be LLISTED in 32 chr. lines.

UPDATE COMPUTER SYSTEMS PAGE DIRECTORY, APRIL 1993

The computer that an article concerns is marked by using the following mark at the start of the page number-TS2068 = *,QL = # ,Z88 = % ,TS1000=^. There will be no mark if the article or ad applies to all or several different computer systems.

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EDITORIAL TIME by Frank Davis

Welcome to the April issue of UPDATE! I will be short on lectures this issue so that we can get to the articles and ads. We have at least two exciting events coming up this summer that I hope to see many of you at.

The first is a new event, a show here in North America, for users of the QL. It is called Miracle In Newport (Rhode Island) and will take place June 5th. UPDATE Magazine will be there for it, as well as Mechanical Affinity, both QUANTA librarians for North America (Bob Dyl and Paul Holmgren), Bill Cable of WOOD and WIND Computing, MIRACLE SYSTEMS of the U.K., W. N. Richardson (formerly E.E.C.) of the U.K., TF SERVICES, of the U.K., IQLR, and possibly Dilwyn Jones Computing, also of the U.K. A few user groups and at least one Sinclair club have also indicated they may be there with tables. Most of us dealers will be arriving a day or two early, and staying at least another day or two after the event. The QL is definitely not a dead machine, and for those who have not closely followed it, this will be a great chance to see just how sophisticated the hardware and software have become.

The second event will be the annual DMA COMPUTERFEST at Dayton, Ohio in August. We hope to have a full ad and info on this in the next issue of UPDATE. This will be the 3rd year for UPDATE and Mechanical Affinity to go and display at this show. I hope to see much more advance planning and contact to Sinclair users this year than was done last year. We had quite a few show up for it, but with the word spread farther and faster we could easily double that number. Tim Swenson is now living in that area and just may give that boost that is needed. Please, guys and gals, don't take this as too critical. What was done last year was good, we just need more of it. I am told over 27 thousand people attended last years show and it is a great place for disk drives, monitors, and all generic computer supplies. For those who have a non-Sinclair machine, you will find just about any computer you can think of represented.

The last item, is to tell you in advance, that UPDATE Magazine will be continuing for at least one more year beyond your July issue. This means that we will be here still in 1994. The hardest part on this decision was how long it takes most of you to finally get your renewal into us. The number of subscribers has stayed steady; we lose a few occasionally, but gain some new ones each year. I have wanted to upgrade the hardware end of producing the magazine, and for that we need money. We have kept the price the same for three years, and this in the face of rising postage costs, as well as paper and toner. A few may say "well I only pay $20 for some magazines that publish 12 issues a year!" That is true and most of them are filled with many full page and expensive ads. We do not have that as a source of income, only your subscription. This does not mean that the price will be going up next year, just telling you why you should renew at the exact time it is due. Many thanks to those few of you who sent a few extra dollars to help out, and to those who got a subscription for a friend. I use Sinclair computers, as well as my Amiga, and want to see this magazine continue as well as most of you. See ya next issue!

Mr. William J. Pedersen
1120 Merrifield S.E.
Grand Rapids, MI 49507

Dear Bill,

After reading your article on "TS2068 Video Bells and Whistles" in the October, 1992 issue of UPDATE, I decided to write a sample program which incorporated your ideas on using the high resolution color graphics mode. The result is the enclosed program on disk in LKDOS format. "PALLET.B1" utilizes the entire 24 line screen to draw pictures. Only the pallet area of the screen is locked out for drawing color images. It also has a file saving and loading capability. When you run the program, the screen displays the available color pallet at the lower right and a small white area above it. A flashing cursor is displayed near the pallet area. The program is designed to operate with a standard TS2068 compatible joystick which is plugged into the port on the left side of the computer. If you desire to load a screen from disk instead of drawing a new one, then the first action must be to move the cursor to the small white area above the pallet. Pressing the button on the joystick at this time will result in a message asking you to input the name of a file to be loaded. I have included a sample file named "DEMO1" which can be used to demonstrate this feature. The saved file consists of only the second display area of 6144 bytes which contains the color attributes for the display. Since the primary display file only consists of alternating 4 bit "BIXELS" of ink and paper, there is no need to save it. The "DEMO1" program is not intended as a work of art since my artistic ability is slightly less than my musical talent, which is zero.

If you wish to create a new graphic drawing, then the initial action after running the program, would be to move the cursor to a selected color area on the pallet and pressing the joystick button. The selected color is displayed in a character position located near the pallet. After selecting a color, slew the cursor to a desired position on the screen and press the button, holding it until the cursor stops blinking. After this, moving the cursor will result in the selected color being left in the "BIXEL" positions that the cursor traverses. To turn off the painting of color, press the button again until the cursor stops blinking. The cursor can then be moved to a different part of the screen where the drawing can be continued or a new color may be selected

from the pallet.

When you are finished with the drawing, you may move the cursor to the small white area and push the joystick button. you will be asked for the name of the file to be saved at which time you can enter a file name up to 6 characters long (the .C1 suffix is added by the program). If you enter the name "NOFILE" or "nofile" then the program will terminate with all parameters returned to normal. You can also terminate the program at any time with the "BREAK" command which will also result in all parameters being returned to normal.

I wrote the bulk of the program in BASIC in order to demonstrate the feasibility of doing so. There are 152 bytes of machine code which is loaded into the printer buffer area of memory when the program is run. This code handles the video mode changes, the movement of the O.S.RAM code to high memory and back, and the primary and secondary display file initialization. It also has a section which moves the lower third of the second display file temporarily to high memory when this portion of the screen is enabled for print statements.

The only problem with writing the main program in BASIC is the fairly slow movement of the cursor. Although some speedup of the movement could be achieved by rearranging the order of the subroutines to shorten the search time, I will probably convert much of the program to machine code. You mentioned in your article that the two 768 byte areas normally used for the screen attribute files are available for machine code in the high resolution color mode. This is true, but extreme care must be used in connection with the primary display file attributes area. Although the SCLD chip does not access this area when the high resolution color mode is active, HOME ROM routines such as CLS and PRINT will overwrite all or part of the primary screen attributes area with the ink and paper colors stored in the systems variables area of memory.

I have included a listing of the program and a listing of the code utilized for screen setup. I have also included a machine code utility program which generates a listing of all BASIC program variables which reside in the VARS area of memory. This program also resides in the printer buffer area when it is loaded with the command PRINT #4: LOAD"VARPRT.C1"CODE. After listing a normal BASIC program on my printer, I use the command RAND USR 23296 to activate the variables search routine which prints out the name

and type of all variables which have been stored in the VARS area when the program has been run. This utility assumes that an AERCO type printer interface at port 127 (7FH) exists. If your printer port number is different, then it will be necessary to patch 3 locations (23522, 23529, and 23531) with the correct port address prior to running it. I have found this utility to be useful for debugging programs to find out if certain areas of the program have not been accessed during the RUN sequence, since the VARS area will contain only those variables which have been encountered during execution of the program. This utility code is also useful in determining whether or not a variable name has been used already when you are patching a long BASIC program.

I hope that introducing a practical program which makes use of the heretofor largely ignored high resolution color mode will create continued interest in the TS2068 computer capabilities.

sincerely,

Charles G (Chuck) Bothner

Charles G. Bothner
137 East Shore Road
Denville, NJ 07834

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```
  5 REM THIS PROGRAM GENERATES A HIGH RESOLUTION COLOR PALLET AT THE LOWER
    RIGHT CORNER OF THE SCREEN AND THEN ALLOWS DRAWING OF SELECTED COLORS AND
    IT HAS FILE SAVING CAPABILITY. "PALLET.B1" REV. 7, DECEMBER 30, 1992, BY
    C.G.BOTHNER
  8 POKE 23730,24: POKE 23731,247: REM SET RAMTOP
 10 PRINT #4: LOAD "HIRESC.C1"CODE : RANDOMIZE USR 23296
 19 REM GENERATE PALLET DISPLAY
 20 LET B=0: LET C=28703: LET D=0: LET COL1=9: LET COL2=9: LET S=0
 25 ON ERR  GO TO 9000
 30 FOR K=224 TO 0 STEP -32
 40 FOR I=C TO C+1536 STEP 512
 50 FOR J=I TO I+K STEP 32
 60 POKE J,B: NEXT J: NEXT I
 70 LET C=C+31: LET B=B+9
 80 NEXT K
 90 LET B=0: LET C=28959
100 FOR K=0 TO 7
110 FOR I=C TO C+1536 STEP 512
120 FOR J=I TO I+K
130 POKE J,B: NEXT J: NEXT I
140 LET C=C+31: LET B=B+9
150 NEXT K: OUT 245,7: OUT 246,0
155 GO SUB 3000: REM MARK DISK ACCESS AREA
160 LET X=219: LET Y=55: REM CURSOR START LOCATION
170 GO SUB 1000: REM GET ATTR. BYTE ADDR.
190 GO SUB 5000: REM DETERMINE WHETHER PAPER OR INK CHANGES
210 IF P=0 THEN  GO TO 250
220 LET CT1=INT (COLEV/8)*8: REM FLASH BLACK INK
230 LET CT2=INT (COLOD/8)*8
240 GO TO 270
250 LET CT1=((COLEV/8)-INT (COLEV/8))*8: REM BLACK PAPER
260 LET CT2=((COLOD/8)-INT (COLOD/8))*8
270 POKE ADDR,CT1: POKE (ADDR+256),CT2
280 IF P=0 THEN  GO TO 320
290 LET CT1=INT (COLEV/8)*8+7: REM FLASH WHITE INK
300 LET CT2=INT (COLOD/8)*8+7
310 GO TO 340
320 LET CT1=((COLEV/8)-INT (COLEV/8))*8+56: REM WHITE PAPER
330 LET CT2=((COLOD/8)-INT (COLOD/8))*8+56
340 POKE ADDR,CT1: POKE (ADDR+256),CT2
350 POKE ADDR,COLEV: POKE (ADDR+256),COLOD: REM FLASH ORIGINAL COLORS
360 IF  STICK (2,1)<>0 THEN  GO SUB 2000: IF S=2 THEN  GO TO 9000
370 LET Z= STICK (1,1)
380 IF Z=0 THEN  GO TO 170
390 IF Z=1 THEN  LET Y=Y+2
400 IF Z=2 THEN  LET Y=Y-2
410 IF Z=4 THEN  LET X=X-4
420 IF Z=8 THEN  LET X=X+4
430 IF Z=5 THEN  LET X=X-4: LET Y=Y+2
440 IF Z=6 THEN  LET X=X-4: LET Y=Y-2
450 IF Z=9 THEN  LET X=X+4: LET Y=Y+2
460 IF Z=10 THEN  LET X=X+4: LET Y=Y-2
470 IF X>255 THEN  LET X=255
480 IF X<0 THEN  LET X=1
490 IF Y>191 THEN  LET Y=191
```

```
 500 IF Y<0 THEN  LET Y=1
 510 GO SUB 4000
 520 IF D=1 THEN  GO SUB 1000: GO SUB 5000: GO SUB 2140
 530 GO TO 170
 999 REM GET ATTR. BYTE ADDRESS
1000 LET L=191-Y: LET BLOCK=INT (L/64)
1010 IF BLOCK=0 THEN  LET START=24576
1020 IF BLOCK=1 THEN  LET START=26624
1030 IF BLOCK=2 THEN  LET START=28672
1040 LET LINE=INT (L/8)-(BLOCK*8)
1050 LET SCAN=((L/8)-LINE-(BLOCK*8))*8
1060 LET ADDR=START+(32*LINE)+(256*SCAN)+INT (X/8)
1070 LET COLEV=PEEK ADDR: LET COLOD=PEEK (ADDR+256)
1080 RETURN
1999 REM PROCESS BUTTON PUSHES
2000 IF X>252 AND Y>73 AND Y<78 THEN  GO TO 2300: REM DISK ACCESS
2010 IF INT (Y/8)>=8 THEN  GO TO 2120
2020 IF X<(192+8*INT (Y/8)) THEN  GO TO 2120
2030 REM PICKUP PALLET COLORS
2040 GO SUB 1000: REM GET ATTR. BYTE ADDR.
2050 LET COL1=PEEK ADDR: LET COL2=PEEK (ADDR+256)
2060 FOR I=28761 TO 30297 STEP 512
2070 POKE I,COL1: NEXT I
2080 FOR I=29017 TO 30553 STEP 512
2090 POKE I,COL2: NEXT I
2100 LET COL1=INT (COL1/8): LET COL2=INT (COL2/8)
2110 LET S=1: LET D=0: RETURN
2120 IF D=1 THEN  LET D=0: GO TO 2122
2121 IF D=0 THEN  LET D=1: GO TO 2140
2122 IF  STICK (2,1)<>0 THEN  GO TO 2122
2124 RETURN
2130 REM PLACE NEW COLORS ON SCREEN
2140 IF P=0 THEN  GO TO 2180
2150 LET CT1=INT (COLEV/8)*8+COL1
2160 LET CT2=INT (COLOD/8)*8+COL2
2170 GO TO 2200
2180 LET CT1=((COLEV/8)-INT (COLEV/8))*8+8*COL1
2190 LET CT2=((COLOD/8)-INT (COLOD/8))*8+8*COL2
2200 POKE ADDR,CT1: POKE (ADDR+256),CT2
2220 IF  STICK (2,1)<>0 THEN  GO TO 2220
2230 RETURN
2300 RANDOMIZE USR 23366: REM SAVE LOWER PART OF SCREEN ATTR.
2310 IF S=0 THEN  GO TO 2370
2320 INPUT "SAVE FILE NAME(6 CHAR.MAX)?";A$
2325 IF A$="NOFILE" OR A$="nofile" THEN  GO TO 2360
2330 LET B$=A$+".C1"
2340 RANDOMIZE USR 23343: REM RESTORE SCREENS
2350 PRINT #4: SAVE B$ CODE 24576,6144
2360 LET S=2: RETURN
2370 INPUT "INPUT FILE NAME(6 CHAR.)?";A$
2380 LET B$=A$+".C1"
2390 PRINT #4: LOAD B$ CODE
2400 RANDOMIZE USR 23427: REM RESTORE PRIMARY DISPLAY FILE
2410 RETURN
2999 REM MARK DISK ACCESS TARGET AREA
```

```
3000 FOR I=27359 TO 28127 STEP 256
3010 POKE I,57: NEXT I: REM MARK IN WHITE
3020 RETURN
3999 REM TURN OFF PAINTING IF IN PALLET AREA OR DISK ACCESS AREA
4000 IF X>251 AND Y>73 AND Y<78 THEN  LET D=0
4010 IF INT (Y/8)>=8 THEN  GO TO 4030
4020 IF X>=(192+8*INT (Y/8)) THEN  LET D=0
4030 RETURN
4999 REM DETERMINE IF PAPER OR INK IS CHANGED
5000 LET X1=INT (X/4)/2: LET P=0
5010 IF X1=INT X1 THEN  LET P=1: REM 0=PAPER,1=INK
5020 RETURN
8999 REM EXIT ROUTINE
9000 ON ERR  RESET
9010 RANDOMIZE USR 23406: REM RETURN TO NORMAL VIDEO MODE
9020 STOP
```

```
B      VARIABLE
C      VARIABLE
D      VARIABLE
COL1      VARIABLE
COL2      VARIABLE
S      VARIABLE
K      FOR/NEXT VAR.
I      FOR/NEXT VAR.
J      FOR/NEXT VAR.
X      VARIABLE
Y      VARIABLE
L      VARIABLE
BLOCK      VARIABLE
START      VARIABLE
LINE      VARIABLE
SCAN      VARIABLE
ADDR      VARIABLE
COLEV      VARIABLE
COLOD      VARIABLE
X1      VARIABLE
P      VARIABLE
CT1      VARIABLE
CT2      VARIABLE
Z      VARIABLE
A$     VARIABLE
B$     VARIABLE
```


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Listing of the "HIRESC.C1" code used with the "PALLET" program.

```
5B00 F3       ENTR: DI              ;disable ints.
5B01 C5             PUSH BC         ;save registers
5B02 E5             PUSH HL
5B03 D5             PUSH DE
5B04 3E80           LD A,80         ;set up for XROM access
5B06 D3FF           OUT(FF),A
5B08 3E01           LD A,01         ;enable XROM
5B0A D3F4           OUT(F4),A
5B0C 3E02           LD A,02         ;hi-res color mode
5B0E CD8E0E         CALL 0E8E       ;CHNGVID in XROM
5B11 AF             XOR A           ;clear A
5B12 D3F4           OUT(F4),A       ;enable HOME ROM
5B14 3E09           LD A,09         ;set up for blue ink,blue paper
5B16 210060         LD HL,6000      ;start of display file 2
5B19 010018         LD BC,1800      ;6144 bytes in file
5B1C CD8A5B         CALL STOR       ;load attribute file
5B1F 3EF0       AA: LD A,F0         ;ink bixel on left,paper on right
5B21 210040     BB: LD HL,4000      ;start of display file 1
5B24 010018         LD BC,1800      ;6144 bytes in file
5B27 CD8A5B     CC: CALL STOR       ;load primary display file
5B2A D1             POP DE          ;restore regs.
5B2B E1             POP HL
5B2C C1             POP BC
5B2D FB             EI              ;enable ints.
5B2E C9             RET             ;done
-------------------------------------------------------------
5B2F F3       RSTR: DI              ;disable ints.
5B30 C5             PUSH BC         ;save regs.
5B31 E5             PUSH HL
5B32 D5             PUSH DE
5B33 2118EF         LD HL,EF18      ;start of temporary storage
5B36 110070         LD DE,7000      ;lower 1/3 of display file 2
5B39 010008         LD BC,0800      ;2048 bytes to be moved
5B3C EDB0           LDIR            ;move them
5B3E 2118F7         LD HL,F718      ;original RAMTOP
5B41 22B25C         LD(5CB2),HL    store RAMTOP
5B44 18D9           JR,AA           ;restore display file 1
```

Listing of "HIRESC.C1" (continued)

```
5B46 F3       ENBL: DI              ;disable ints.
5B47 C5             PUSH BC         ;save regs.
5B48 E5             PUSH HL
5B49 D5             PUSH DE
5B4A 210070         LD HL,7000      ;lower 1/3 of display file 2
5B4D 1117EF         LD DE,EF17      ;store new RAMTOP
5B50 ED53B25C       LD(5CB2),DE
5B54 13             INC DE          ;point to start of storage area
5B55 010008         LD BC,0800      ;2048 bytes to be moved
5B58 EDB0           LDIR            ;move them
5B5A 3E0F           LD A,0F         ;setup for blue paper,white ink
5B5C 210070         LD HL,7000      ;lower 1/3 of display file 2
5B5F 010008         LD BC,0800      ;2048 bytes to be written
5B62 CD8A5B         CALL STOR       ;set up attribute file
5B65 AF             XOR A           ;clear A
5B66 210050         LD HL,5000      ;lower 1/3 of display file 1
5B69 010008         LD BC,0800      ;2048 bytes to be written
5B6C 18B9           JR,CC           ;clear part of display file 1
-------------------------------------------------------------------
5B6E F3       NORM: DI              ;disable ints.
5B6F C5             PUSH BC         ;save regs.
5B70 E5             PUSH HL
5B71 D5             PUSH DE
5B72 3E80           LD A,80         ;set up for XROM access
5B74 D3FF           OUT(FF),A
5B76 3E01           LD A,01         ;enable XROM
5B78 D3F4           OUT(F4),A
5B7A AF             XOR A           ;clear A
5B7B CD8E0E         CALL 0E8E       ;CHNGVID in XROM
5B7E AF             XOR A
5B7F D3F4           OUT(F4),A       ;enable HOME ROM
5B81 189E           JR,BB           ;clear display file 1
-------------------------------------------------------------------
5B83 F3       PRIM: DI              ;disable ints.
5B84 C5             PUSH BC         ;save regs.
5B85 E5             PUSH HL
5B86 D5             PUSH DE
5B87 1896           JR,AA           ;restore file 1 for hi-res color
-------------------------------------------------------------------
5B89 00       TEMP: NOP             ;temporary storage
5B8A 32895B   STOR: LD(TEMP),A      ;store a byte
5B8D 3A895B     DD: LD A,(TEMP)     ;get the byte again
5B90 77             LD(HL),A        ;store it in the display file
5B91 23             INC HL          ;point to next address
5B92 0B             DEC BC          ;bump counter
5B93 78             LD A,B          ;see if done
5B94 B1             OR A,C
5B95 20F6           JR NZ,DD        ;continue until done
5B97 C9             RET             ;done
```

Listing of the "VARPRT.C1" code.

```
5B00 E5       STRT: PUSH HL         ;save regs.
5B01 D5             PUSH DE
5B02 F5             PUSH AF
5B03 2A4B5C         LD HL,(5C4B)    ;get start of VARS area
5B06 7E         AA: LD A,(HL)       ;get the character
5B07 FE80           CP A,80         ;see if end of VARS area
5B09 2825           JR Z,BB         ;if so, we are done
5B0B F5             PUSH AF         ;save the character
5B0C E61F           AND A,1F        ;mask off upper bits
5B0E C640           ADD A,40        ;convert to upper case ASCII
5B10 CDD75B         CALL PRTO       ;send it to printer
5B13 F1             POP AF          ;get the char. back
5B14 E6E0           AND A,E0        ;save idendifier bits
5B16 FE40           CP A,40         ;is it a string variable ?
5B18 281A           JR Z,CC         ;process it if so
5B1A FE60           CP A,60         ;is it a single letter numeric ?
5B1C 284D           JR Z,KK         ;process it if so
5B1E FE80           CP A,80         ;is it a numeric array ?
5B20 2819           JR Z,DD         ;process it if so
5B22 FEA0           CP A,A0         ;is it a long name numeric ?
5B24 2851           JR Z,LL         ;process it if so
5B26 FEC0           CP A,C0         ;is it a string array ?
5B28 280A           JR Z,CC         ;process it if so
5B2A FEE0           CP A,E0         ;is it a FOR/NEXT variable ?
5B2C 285D           JR Z,NN         ;process it if so
5B2E CF             RST 08          ;error return if not found
5B2F 01                             ;"variable not found" message
-------------------------------------------------------------------
5B30 F1         BB: POP AF          ;restore regs.
5B31 D1             POP DE
5B32 E1             POP HL
5B33 C9             RET             ;done
-------------------------------------------------------------------
5B34 F5         CC: PUSH AF         ;save identifier
5B35 3E24           LD A,24         ;"$" ASCII
5B37 CDD75B         CALL PRTO       ;send it to printer
5B3A F1             POP AF          ;get identifier back
5B3B 23         DD: INC HL          ;get # of bytes to jump
5B3C 5E             LD E,(HL)
5B3D 23             INC HL
5B3E 56             LD D,(HL)
5B3F 19             ADD HL,DE       ;update address
5B40 23             INC HL          ;add 1
5B41 E5             PUSH HL         ;save new address
5B42 FE40           CP A,40         ;is it a string variable ?
5B44 2005           JR NZ,EE        ;jump if no match
5B46 21B05B         LD HL,VARM      ;address of "VARIABLE" message
5B49 1817           JR,II           ;go to output routine
-------------------------------------------------------------------
5B4B FEC0       EE: CP A,C0         ;is it a string array ?
5B4D 2005           JR NZ,FF        ;jump if not
5B4F 21BC5B         LD HL,ARRM      ;address of "ARRAY" message
5B52 180E           JR,II           ;go to output routine
-------------------------------------------------------------------
```

"VARPRT.C1" code (continued)

```
5B54 FE80      FF: CP A,80        ;is it a numeric array ?
5B56 2802          JR Z,GG        ;if so, send message
5B58 CF            RST 08         ;error return if not found
5B59 DB                           ;"???????" message
-------------------------------------------------------------
5B5A 21BC5B    GG: LD HL,ARRM     ;address of "ARRAY" message
5B5D CD965B    HH: CALL XSPA      ;message out with extra space
5B60 1803          JR,JJ          ;go to finish sequence
-------------------------------------------------------------
5B62 CD9B5B    II: CALL MOUT      ;output the message
5B65 CDA55B    JJ: CALL CRLF      ;output a CR and a LF
5B68 E1            POP HL         ;get new address back
5B69 189B          JR,AA          ;go to next item in table
-------------------------------------------------------------
5B6B 23        KK: INC HL         ;update address to next var.
5B6C 23            INC HL
5B6D 23            INC HL
5B6e 23            INC HL
5B6F 23            INC HL
5B70 23            INC HL
5B71 E5            PUSH HL        ;save new address
5B72 21B05B        LD HL,VARM     ;address of "VARIABLE" message
5B75 18E6          JR,HH          ;go to output routine
-------------------------------------------------------------
5B77 23        LL: INC HL         ;get next character
5B78 7E            LD A,(HL)
5B79 F5            PUSH AF        ;save it
5B7A E67F          AND A,7F       ;form ASCII character
5B7C FE5B          CP A,5B        ;jump if upper case or numeric
5B7E 3802          JR C,MM        ;
5B80 E65F          AND A,5F       ;convert to upper case
5B82 CDD75B    MM: CALL PRTO      ;send it to printer
5B85 F1            POP AF         ;get original character back
5B86 17            RLA            ;test M.S.bit
5B87 30EE          JR NC,LL       ;continue if not last char.
5B89 18E0          JR,KK          ;update to next address
-------------------------------------------------------------
5B8B 1E13      NN: LD E,13        ;update address to next var.
5B8D 1600          LD D,00
5B8F 19            ADD HL,DE
5B90 E5            PUSH HL        ;save new address
5B91 21C55B        LD HL,FORN     ;address of "FOR/NEXT" message
5B94 18CC          JR,II          ;output message and return
-------------------------------------------------------------
5B96 3E20    XSPA: LD A,20        ;spacecharacter
5B98 CDD75B        CALL PRTO      ;send it to printer
5B9B 5E      MOUT: LD E,(HL)      ;get # of characters
5B9C 23        PP: INC HL         ;point to next
5B9D 7E            LD A,(HL)      ;get the character
5B9E CDD75B        CALL PRTO      ;send it to printer
5BA1 1D            DEC E          ;decrement counter
5BA2 20F8          JR NZ,PP       ;continue if not done
5BA4 C9            RET            ;done
-------------------------------------------------------------
```

"VARPRT.C1" code (continued)

```
5BA5 3E0D    CRLF: LD A,0D        ;CR character
5BA7 CDD75B        CALL PRTO      ;send it to printer
5BAA 3E0A          LD A,0A        ;linefeed character
5BAC CDD75B        CALL PRTO      ;send it to printer
5BAF C9            RET            ;done
-------------------------------------------------------
5BB0 0B      VARM:                ;11 chars. to be sent
5BB1 20            " "            ;space character
5BB2 20            " "
5BB3 20            " "
5BB4 56            "V"
5BB5 41            "A"
5BB6 52            "R"
5BB7 49            "I"
5BB8 41            "A"
5BB9 42            "B"
5BBA 4C            "L"
5BBB 45            "E"
-------------------------------------------------------
5BBC 08      ARRM:                ;8 chars. to be sent
5BBD 20            " "
5BBE 20            " "
5BBF 20            " "
5BC0 41            "A"
5BC1 52            "R"
5BC2 52            "R"
5BC3 41            "A"
5BC4 59            "Y"
-------------------------------------------------------
5BC5 11      FORN:                ;17 chars. to be sent
5BC6 20            " "
5BC7 20            " "
5BC8 20            " "
5BC9 20            " "
5BCA 46            "F"
5BCB 4F            "O"
5BCC 52            "R"
5BCD 2F            "/"
5BCE 4E            "N"
5BCF 45            "E"
5BD0 58            "X"
5BD1 54            "T"
5BD2 20            " "
5BD3 56            "V"
5BD4 41            "A"
5BD5 52            "R"
5BD6 2E            "."
-------------------------------------------------------
5BD7 F5      PRTO: PUSH AF        ;save regs.
5BD8 C5            PUSH BC
5BD9 4F            LD C,A         ;save the char. in C
5BDA CD0920    QQ: CALL 2009      ;see if BREAK is active
5BDD 3802          JR C,RR        ;jump if not
5BDF CF            RST 08         ;error type return
5BE0 14                           ;"BREAK" message
-------------------------------------------------------
```

"VARPRT.C1" code (continued)

```
5BE1 DB7F       RR: IN A,(7F)       ;read printer port
5BE3 CB67           BIT 4,A         ;test BUSY bit
5BE5 20F3           JR NZ,QQ        ;loop back if busy
5BE7 79             LD A,C          ;get the char.
5BE8 D37F           OUT(7F),A       ;send it to printer
5BEA DB7F           IN A,(7F)       ;reset the port
5BEC C1             POP BC          ;restore regs.
5BED F1             POP AF
5BEE C9             RET             ;done
```

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THE HISTORY of QZX

Alex. F. Burr

What is QZX and why should any Sinclair computer user care about its history. The answer is that QZX is the longest running Sinclair newsletter in the United States. It has just started its tenth year under the current management. There a a large number of Sinclair computer users which have not heard of it because it is a special purpose newsletter devoted to the uses of Sinclair computers in radio. Most of the subscribers are amateur radio operators and are often known by their Federal Communications Commission issued call letters. Nevertheless quite a few readers are not licensed but have an interest in the technical articles published. The readers come from all over the United States and, at one time or another, from about 20 different countries.

QZX was started by K2MI, Marty Irons from New Jersey. He started the magazine as a very personal service to the ham radio computer community, so some of the early history is a result of his actions.

An article about a potent, 12-ounce computer from England that appeared in Popular Science in 1980 absolutely fascinated him, so he sent in his $200 for a Sinclair ZX80 the next day. When it came, he was very impressed by the way it handled the syntax of BASIC programs. He was as happy with it as the gigantic IBM mainframe he programmed at Western Union. As a ham, he just had to find out if it could be applied to ham projects, so he asked QST, the national magazine for radio amateurs, to print an "I'd like to get in touch with" article to see which other hams were thinking along the same lines.

The initial response was not overwhelming, but those who did write and/or call were very enthusiastic. Some even sent in BASIC programs and technical data with their first letter. Nobody offered to put out a newsletter, so he ran with the ball. Thus QZX was born. The name came from the radio operating background of the readers. Abreviations starting with Q have special meanings for hams so it was natural to add the initials of the first computer to Q to get a title for the newsletter. At that time Marty could not imagine that so many hams would own Sinclairs within 2 years! Friendships among the little group of users grew quickly. W9CQD started a 20-meter net, or scheduled time for the geographically dispersed group of radio operators to all listen on a specific frequency. An interesting phenomenon then appeared, which was called the 14-day reflex. About two weeks after each issue of QZX was mailed, letters would pour in with suggested improvements for many of the BASIC programs published. The hams were trying other's ideas, finding better ways to do things, then sharing their improvements by sending them for publication in QZX.

Marty could not begin to handle all of them, and eventually had to call for volunteers to test the programs coming in through the mail. That worked exceptionally well. A user's group called "SARUG" was started in England by G4INP, and he handled the rest of the world while QZX responded to hams in the U. S.

The QZX format improved with the use of a laser printer. Hams were by then keying their transmitters, decoding incoming cw, printing antenna pointings, and many of the things that hams now do routinely with their IBM-compatible PC's. But these early readers were pioneers, they did it before the IBM PC was on the market. Eventually the volume of mail and phone calls swamped Marty. K2MI was putting in about 4 to 6 hours a day on the project in addition to working full-time. He rarely saw his wife and 3 kids. When a brief article about QZX appeared in QST in the summer of 1982, his mail suddenly jumped to about 40-50 pieces a day. Reluctantly he had to give it up, as there was no way he could satisfy the demand for a quality newsletter. For him it was a very exciting time, making new friends and helping others help others. The rate of progress was amazing!

Marty still drags out a Timex 1000 and hooks it up once in a while just for sentimental reasons. But QZX is still alive after 10 more years and that some of the original contributors are still sending in articles.

Marty went $700 in the hole and rarely saw his family for over a year, but he still has very fond memories of the early QZX days of 1981-1982. The early days of QZX were truly exciting, with events such as the phone call from Italy saying that a ham in England had shipped him a Sinclair printer (they were considered a fire hazard and not approved for sale in this country).

In 1982 it was that QST article, mentioned above, offering a free subscription to the new Sinclair newsletter, QZX, which attracted the attention of K5XY, Alex Burr. He too could not resist the bargain that the Sinclair computer offered, but he first obtained a ZX81 kit. He was already familiar with the Sinclair products because he had been in Scotland when Sinclair was just hitting his stride with inexpensive HI-FI audio kits. The kit went together quickly and a long association with Sinclair computers began.

When K2MI announced that he was looking for somebody else to take over QZX, W4GHV, Bo Barry, was recruited and negotiations for a change in sponsorship were stated. Unfortunately they failed. K2MI thought that a commercial company starting up in Arizona offered more stability for QZX. Unfortunately that company in turn failed, so QZX wound up in Las Cruces, NM with K5XY as publisher and W4GHV as editor. Soon KB5EZ, Ron Suggs, was recruited as technical editor.

The original idea was that the editors would do all the work and that K5XY would just write an occasional letter. Unfortunately that was not to be. KB5EZ was a graduate student at New Mexico State University and had the

unreasonable idea that the first order of business was to study enough to graduate, so he dropped out after a short time.

W4GHV put together QZX for five years, writing articles and organizing the material submitted by QZX readers. But he too found that it took quite a bit of time, so one day he up and left town. (The fact that he received a job promotion, a big salary increase, and a location in his original home state may have had something to do with the move.) In any case K5XY has been running QZX ever since, with the help of submissions from QZX readers and the newsletters of other Sinclair groups.

K2MI spent much of his own money to get QZX started. With the change in management, QZX was no longer free but had a subscription charge of $12.00. It also accepted paid advertising to help support the printing and mailing costs. It has always been self-supporting (if you do not count the labor of putting it out).

In 1988 postage increases forced the subscription rate up to $15.00. A subsequent postal increase caused a minor crisis. There was just no way that one could really justify another subscription increase, so a postage fund was created to which a surprisingly large number of readers have been making a annual contribution. This fund, along with a little advertising revenue, has permitted QZX to pay its own way on the average.

These postal increases have had a great effect on the foreign readers. At one time there were readers in over 20 countries. QZX even had a distributor in Sweden who arranged for subscriptions from European hams. But the cost of sending the issues to other countries is now so high that few can afford it.

It is interesting to note that one of the costs of foreign subscriptions is replacing the issues lost in the mail. Hams in the US tend to complain about our postal service. They should look at some of the other postal services in the world. QZX has been told by some readers to send the issues in plain envelopes and to always use plain non-commemorative stamps so that collectors will not be tempted to waylay the issue. US hams have only rarely asked for a replacement for an issue lost in the mail here.

Advertising has always helped with the expenses of QZX. At first it was easy to get companies to advertise, but the buying habits of hams and the specialized nature of the Sinclair community does not make it obvious that advertising in QZX is a cost effective measure. Nevertheless some companies have been major contributors.

One of these is T & C Services from Buffalo, NY. They hold the record for the longest continuous series of ads in any US Sinclair related publication. One day they just disappeared, never to be heard from again (but not leaving behind any unfilled orders, something which cannot be said for some other Sinclair companies.) There is sure to be an interesting story behind this company, but it is not known.

Thomas B. Woods is another Sinclair entrepreneur who ran a long series of ads. The current record holder is RMG Enterprises, who sell a variety of Sinclair related products. (See their ad in this issue.)

The other advertising feature is the Unclassified ads. It had been hoped that this would be an inexpensive choice for companies to make sure that their offerings were always in front of readers, but this hope has not been realized. The biggest user of this section has been WA4BQE. Ed has used the unclassifieds to get information about a number of types of Sinclair equipment.

QZX would not be what it is without contributions from its readers. Some have sent in outstanding amounts of material.

One of the first major authors was KA2HLO, Kraig Pritts. He created a whole series of ham related programs which he published in QZX and later sold on tapes.

A major series of articles by Don Lamen, in part reprinted from other publications, was run starting in the October 1989 issue. Don was not a ham but his investigation of the Sinclair Logic Chip (SLC) in the ZX81 was an electronic detective effort worthy of any ham.

Few will forget the articles by LU8MAD. Guillermo is the most prolific foreign author and has described some of the most sophisticated uses of the Sinclair computers in ham applications. He describes one case where a commercial power company was using ZX81 computers to help control their power lines. His son even contributed some cartoons to a few issues.

The most versatile author is WA6DLI, Bob Howard. He has written about several different Sinclair computers and contributed several interesting articles related to satellites.

QZX is the longest running Sinclair newsletter in the world. It may even be the Sinclair newsletter with the largest subscription base. It is the only Sinclair publication of any kind devoted to the ham radio uses of our computers. (The SARUG newsletter mentioned near the beginning of this article has ceased publication some time ago.)

QZX grew rapidly at the start; but, with the disappearance of new Sinclair computers, it was inevitable that that growth would cease. At one time there were substantial savings on postage available from third class postage. It once was cheaper to print the issues rather than Xerox them. But those economies of scale are no longer available. New subscriptions have not entirely ceased, but they are few and far between. The renewal rate is higher than anybody has a right to expect, but in most months one or two readers drop from the list, so it is inevitable that the reader list shrink. However, some have renewed into the year 1994 and QZX will be published as long as there are readers.

The latest effort has been the development of a complete index listing all the articles published under the current management. There are over five hunderd articles all sorted by title, author, and subject.

QZX

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THE INVENTION OF DISK DRIVES: A SUCCESS STORY FOR IBM

by BILL HARMER

If you look at the floppy disk drive of your computer, you probably have to strain your imagination to remember how it was with computers before disk drives were invented. In those days, electronic memory was expensive and most pre-1970 computers relied on cheaper, bulkier forms of memory, even solid magnets (core storage) for RAM and even before magnetic drives, punched paper tape and the punched cards the size of an old US dollar bill were tried. Such media needed big buildings for permanent storage of programs and data. Unfortunately also punched paper or cardboard devices were very slow and due to their mechanical nature, feelers, wheels and their momentum and size, only capable of a certain speed of being pushed around before they became inaccurate or floated between binary 1 and zero, not touching anything. In fact, the main progress of electronic computers has been to save on the size of the physical objects used to represent binary 1 and 0, from the mechanical calculators' one-inch diameter wheels down to tiny buches of electrons that respond to a push with the speed of light, and for which a push may take only a tiny bit of energy. Making a mechanical computer is possible, but the size of it and energy to push the wheels around even slowly, would make it skyscraper-sized to do even the simplest work. When mechanical devices are governed by limits of inertia (momentum)=weight X speed (physicists use the more precisely framed mass and velocity, mv, if you are going to be looking this up in a reference book) then reducing the weight by reducing the size of each part of a computer used to represent a binary bit is obviously the way to go, and the way computer science has gone. The complexity of the logical and math problems (even addition) that computers need to be used to solve to be useful, means many binary bits and many, many parts used to physically represent them, too many for mechanical computers to be useful except in a pinch, when nothing else was available. As for using magnetic storage on tape instead of mechanical storage on punched paper tape or punched cards, the same sort of efficiencies could be had by magnetizing a very tiny area on a ferric oxide coating on plastic tape as opposed to making a rather large hole in paper or cardboard.

It seems we take computers so much for granted now that we forget that they are purely physical ways of working out arithmetic and other information and logical problems, much the way ancient civilization's accountants used to, for example, divide 121 apple baskets into three by taking 121 beans and splitting them into three equal sized groups, and then a simple count of one group could tell how many apple baskets would be one third (and how many would be left over). This is simply a case of letting small, physical objects represent numbers to be divided, added, subtracted, compared, etc. Computers just use electrons and magnetizable areas on a magnetic tape or disk to physically represent numbers rather than beans, but the principle is the same. So much for bean counters.

Early tape drives for computers of the 1950's and 1960's did put a lot of binary data in a small space, the commonest standard being to use 8 parallel tracks to save on the length of tape needed to store data of a large block. But if you look at an old movie of a computer of this time, the reels of tape are always spinning as the computer

tries to find chunks of data on different spots on the tape. So the speed problem became critical as computers got faster and needed to look things up on the tape faster. The mechanisms became a speed bottleneck.

An engineer from IBM had a better idea after taking a lunch break at a diner that had a juke box. He reasoned, if so much data was needed to be looked up that could be found only at unpredictable (mathematically speaking, ramdom from the analytical model used to think of the problem) locations on the tape, perhaps a tape was not the best shape of magnetic medium to use. A disk, like a phonograph record would allow one to get to any track on it without nearly as much physical movement he reasoned, and so the disk drive was born. It was a matter of, as with a long playing phonograph record, moving to the right track, rather than spinning a reel of tape, many feet along the thread of data written on it, that saved physical movement to speed things up. A genius sort of inspiration! Of course, a phonograph record has its track in a spiral form so the music will not be interuped as it would be if the tracks were all circles, closing in on themselves, but the computer, very interrupt tolerant did not need this and so the computer disks used non-overlapping circles one inside the other as the tracks to store the data magnetically on, and in one single line of binary bits. A bit stream, when seen electronically at the electronic circuits that feed the electro-mechanical part of the disk drive's data handling pictures it.

So IBM put its first disk drive on the market in 1957. It was a hard disk, with a removable stacked disk unit, magnetic coating on aluminium base disks, and it was about waist high with a plastic cover to keep out dust that would otherwise obscure the tiny magnetic spots where a binary bit was stored on a track on it. And that is how it all started!

T/SNUG AND ZXIR QLIVE ALIVE!

ZXir QLive Alive is the publication of T/SNUG which is an organization trying to keep the Timex/Sinclair community going by publishing Timex related material. Ads are free so long as they are Timex/Sinclair related. Sell your surplus equipment, list your wanted items, ask for help or whatever. T/SNUG does not have a library as such but there are software librarians and Don Lambert has an extensive file of User Group's software libraries on disk in both Oliger and Larken T/S 2068 plus ZX81 Larken 5.25 disks, I am sorry but no QL disks. The quarterly newsletter is available for a donation of $10.00 per year. Please send check or money order to: Abed Kahale ZXir QLive Alive! Newsletter 335 W Newport Rd Hoffman Estates IL 60195-3106 Tele: (708) 885-4337

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RESURECTING A CRASHED DIRECTORY ON THE ZX81 LARKEN.

by Donald S. Lambert

One of the worst things that can happen is to have a disk become corrupt - especially if it is the only copy you have and the cassette that you had LOADed the original program into the computer will not load again. I had a printout but a six foot LLIST on a ZX81/TS1000 is not one that you would enjoy re-entering into the computer. The disk became corrupt when the system was jarred while SAVEing another program on the disk. I had made a printout of the directory and there were 7 tracks of data in the program.

This is on the Larken ZX81 disk system and so far as I know there is not a program to automatically rewrite a crashed track 0 - which was what seemed to be the problem - at least attempts to read the directory gave CRC ER. Having just recently gotten a ZX81 with 64K on board the computer (no more crashes due to wobbly ram packs) I was working with the two drive Larken interface when I had another disk seemingly get corrupted. This time I was copying it and it was write protected.

A check of the Larken manual gave some POKEs to examine the contents of a track - but not explanation of how to do it. I have Bill Harmer's 130 page+ Unofficial Larken ZX81 Disk Manual and he explained it so that I could see that it was practical to do. But he also mentioned a Public Domain program DOSDOC.B1 that had a slower way of doing it (but required no lengthy explanation of how to do it).

The program LOADs the designated track into the disk I/F BUFFER RAM and then lists the addresses and the data on the screen - but it is slow. The address given is the buffer address not the disk address. And by pressing CONT you advance one screen furthur into the addresses - and with a 2K chip that is a lot of screens - except that I did not have to go that far into the addresses. I took a look at the contents of track 0 of the corrupted disk. And it made no sense at all.

I then looked at track 0 of a good disk and kept stepping and finally I found the file name and while it was crazy appearing, the track numbers of the tracks the files were stored on. (The track numbers start with 129 for 1, 130 for track 2 and so on). The good directory looked like the track map given in the Larken manual. What did the corrupt track map look like? Imagine eating in a dining room served by a half dozen or so waiters from several different kitchens and they were running like mad. You'd ordered and your order was coming but several waiters collided and orders slide from tray to tray and some were lost to the floor. The waiters just keep going and delivered the stuff on the trays regardless of what was ordered. That is the way the corrupted disk track 0 looked.

I next looked at track 1 of the corrupted disk and the file name was there and I knew what had been used and made notes. I then LOADed track 0 into the buffer and POKEd in at address 12352 (which is the first address in the buffer) 255 and at 12353 POKEd in byte 0 and 12354,200. The rest seemed unimportant to me so I stepped to the address 12456, and put in 255 which is the pointer to the first character in the file name then starting with address 12457 I input the character codes for the file name (total maximum of 9 pokes) then an end of the name file and then the following the names addresses address number and the POKE 253 and then the addresses and the track numbers where the program is stored. The numbering for the tracks is weird but starting with 129 it increases by one for each track as you progress through the file names. Then immediately after the last track number you POKE in byte 249 for end of track pointer.

Now a little bit of the nitty gritty that I understand. Every track starts with byte 255 and on track 0 it again appears as the 168th address counting disk addresses from the first address on track 0. In fact byte 255 is the byte that points to the file name and will appear for each file name in track 0. To restore track 0 I had to punch in some 23 pokes and then three key punches SAVEd the poked track back to the disk. And upon trying the results I found the directory was correct and that the program also LOADed correctly. Of course I made some extra copies of the program.

Incidentially, I cleaned the contacts with CATUG's suggestion with mineral oil and I did get the disk that I thought had crashed and was write protected to LOAD. I also had noticed that if the computer and interface seem to be reluctant to LOAD a program, removing power for a moment from the entire system often enabled me to Load the program.

Even if you only have a single disk drive version of LDOS the program of DOSDOC.B1 has some features that are of great help. If you would like to have a copy send me a FORMATted disk with return postage and I will send you a copy. There are eleven disks of Public Domain software available for the ZX81 Larken interface, all on double sided 5.25 disks. 0/0

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==== LAYOUT ====

The LAYOUT program will load a single sheet text file and display it on a scale outline of an 8 1/2" x 11" sheet of paper on the monitor screen. After the file is loaded, you can move it on the scale sheet of paper, set the desired margins, select your choice of fonts, and print the file.

The following figure numbers depict what is portrayed in each figure of the LAYOUT program and the related commands and choices.

Figure 1 Displays a scale blank sheet of paper and asks for inputs of device (flp, mdv, etc.) number and file name.

Figure 2 Displays the input file on the scale blank sheet of paper with zero top and left margins. Information is given on how to move margins, spaces in each margin, and which key to press when text location is satisfactory. The file name, total lines, and maximum characters per line are also shown.

Figure 3 Displays the text properly located on the scale sheet of paper and reminds you to turn the printer ON. You are also given a list of fonts to select from. The selection is highlighted by a change in the paper and ink color on the first letter. You can change the font selection or accept it. If accepted, printing starts.

Figure 4 When printing is completed, the same text page is displayed and you may choose to change the fonts, enter a new file, repeat printing of the current file, or quit.

While the text is being printed, the word "PRINTING" will be displayed on the screen.

This LAYOUT program has been found very useful in the positioning of letters and memos. You can type your letter and not be concerned if the margins are suitable. A brief processing of your letter on the LAYOUT program will provide margins to your satisfaction.

```
10 WINDOW 512,206,0,0: PAPER 0: BORDER 1,6: CLS
20 OPEN #5,con_250x100a4x2: PAPER #5,0: INK #5,6: CLS #5
30 OPEN #6,con_250x100a4x104: PAPER #6,0: INK #6,6: CLS #6
40 OPEN #7,con_161x134a320x16: PAPER #7,6: INK #7,0: CLS #7
50 OPEN #9,con_252x45a256x160: PAPER #9,0: INK #9,6: CLS #9
60 AT #5,4,5: INPUT #5,"Enter device:     ";dev$
65 IF dev$="flp1" OR dev$="flp2" OR dev$="mdv1" OR dev$="mdv2" THEN GO T
O 70: ELSE BEEP 2000,45: AT #5,4,5: PRINT #5,"
":  GO TO 60
70 AT #5,5,5: INPUT #5,"Enter file name:  ";fil$
80 LET c=0: LET m=0: LET lm=0: LET rm=85: LET um=0: LET bm=66: LET l=99.
5
90 OPEN #4, dev$&"_"&fil$
110 REPeat loop
115   IF EOF(#4) THEN EXIT loop
120   INPUT#4,a$: LET s=0: LET f=1: LET c=c+1
125   LET t=LEN(a$): IF t>m THEN LET m=t
130   FOR x=1 TO LEN(a$)
140   IF CODE(a$(x))-32 THEN INK #7,0: ELSE INK#7,6
150   LINE#7,s,l TO f,l
160   LET s=s+.85: LET f=f+.85
170   END FOR x: LET l=l-1.51515
190 END REPeat loop: CLOSE #4
200 AT #9,0,17: STRIP #9,6: INK #9,0: PRINT #9;" ";fil$;" "
205 STRIP #9,0: INK #9,6
210 AT #9,1,17: PRINT #9,c;" Lines total"
220 AT #9,2,17: PRINT #9;m;" Char/Line/Max"
230 AT #1,2,50: PRINT #1,um: AT #1,14,50: PRINT #1,bm-(c-um)
240 AT #1,0,53: PRINT #1,lm: AT #1,0,78: PRINT #1,rm-(m+lm)
245 AT #5,4,5: PRINT #5, "- Margins indicated on chart"
250 AT #5,5,5: PRINT #5, "- Move text by arrow keys                    "
260 AT #5,6,5: PRINT #5, "- When location OK, push <F1>"
300 REPeat loop
310 z = CODE(INKEY$(-1)): SELect ON z
320   =208: IF um = 0 THEN SCROLL 0: ELSE : SCROLL #7,-2:
           LET um = um-1: LET bm = bm+1: blink
330   =216: IF bm = 0 THEN SCROLL 0: ELSE : SCROLL #7,2:
           LET um = um+1: LET bm = 66-(c+um): blink
340   =200: IF rm=0 THEN PAN 0: ELSE : PAN #7,2:LET lm=lm+1:
           LET rm=85-(lm+m): blank
350   =192: IF lm=0 THEN PAN 0: ELSE : PAN #7,-2:LET lm=lm-1:
           LET rm=rm+1: blank
360   =232:    CLS #5
362            AT #5,4,5: PRINT #5,'Is printer "ON" ?'
364            AT #5,5,5: PRINT #5,'Select characters listed below'
366            AT #6,1,5: PRINT #6,'<B>old characters'
368            AT #6,2,5: PRINT #6,'<D>ouble strike'
370            AT #6,3,5: PRINT #6,'<E>lite characters'
380            AT #6,4,5: PRINT #6,'<H>igh quality'
382            AT #6,5,5: PRINT #6,'<I>talic characters'
384            AT #6,6,5: PRINT #6,'<P>roportional'
386            AT #6,8,5: PRINT #6,'Selection OK ?  (y/n)'
```

```
400 OPEN #3,ser1: PRINT #3,CHR$(27);"l";CHR$(lm);
410   =66,98:  PRINT #3,CHR$(27);"E";
415            AT #6,1,5: flip: PRINT #6;"<B>": flop
420   =68,100: PRINT #3,CHR$(27);"G";
425            AT #6,2,5: flip: PRINT #6;"<D>": flop
430   =69,101: PRINT #3,CHR$(27);"<M>";
435            AT #6,3,5: flip: PRINT #6;"<E>": flop
440   =72,104: PRINT #3,CHR$(27);"x1";
445            AT #6,4,5: flip: PRINT #6;"<H>": flop
450   =73,105: PRINT #3,CHR$(27);"4";
455            AT #6,5,5: flip: PRINT #6;"<I>": flop
460   =80,112: PRINT #3,CHR$(27);"p1";
465            AT #6,6,5: flip: PRINT #6;"<P>": flop
500   =78,110: PRINT #3,CHR$(27)&"@"&CHR$(24);
501            CLS #6: GO TO 366
510   =89,121: CLS #5: CLS #6: AT #6,4,16: PRINT #6;"PRINTING"
511            FOR lf =0 TO um-1: PRINT #3: END FOR lf: CLOSE #3
515            COPY_N dev$&"_"&fil$ TO ser1
516            OPEN #3,ser: FOR lf=0 TO 65-(um+c): PRINT #3: END FOR lf
517            CLOSE #3: PAUSE 300: CLS #5: CLS #6
520            AT #5,3,5: PRINT #5;"<C>hange characters"
525            AT #5,4,5: PRINT #5;"<A>nother file"
530            AT #5,5,5: PRINT #5;"<Q>uit"
535            AT #5,6,5: PRINT #5;"<R>epeat"
540   =67,99:  CLS #5: CLS #6: GO TO 700
545   =65,97:  CLS: OPEN #3,ser: PRINT #3,CHR$(27)&"@"&CHR$(24);: CLOSE
#3: RUN
550   =81,113: WINDOW #2,256,202,0,0: PAPER #2,6: INK #2,2
555            BORDER 1,6,0: CLS: WINDOW 256,202,256,0: PAPER 2
560            INK 6: BORDER 1,6,0: CLS: NEW
565   =82,114: AT #6,4,16: PRINT #6,"PRINTING": OPEN #3,ser: GO TO 511
600 END SELect : END REPeat loop
700 OPEN #3,ser
710 PRINT #3,CHR$(27)&"F"&CHR$(27)&"H"&CHR$(27)&"P"
720 PRINT #3,CHR$(27)&"x0"&CHR$(27)&"5"&CHR$(27)&"p0";
730 GO TO 364
800 DEFine PROCedure blink
805 AT 2,50: PRINT "  ": AT 14, 50: PRINT "  "
810 AT 2,50: PRINT um: AT 14,50: PRINT bm
815 END DEFine
830 DEFine PROCedure blank
835 AT 0,53: PRINT "  ": AT 0,78: PRINT "  "
840 AT 0,53: PRINT lm: AT 0,78: PRINT rm
845 END DEFine
850 DEFine PROCedure flip
855 STRIP #6,6: INK #6,0
860 END DEFine
865 DEFine PROCedure flop
870 STRIP #6,0: INK #6,6
875 END DEFine
```

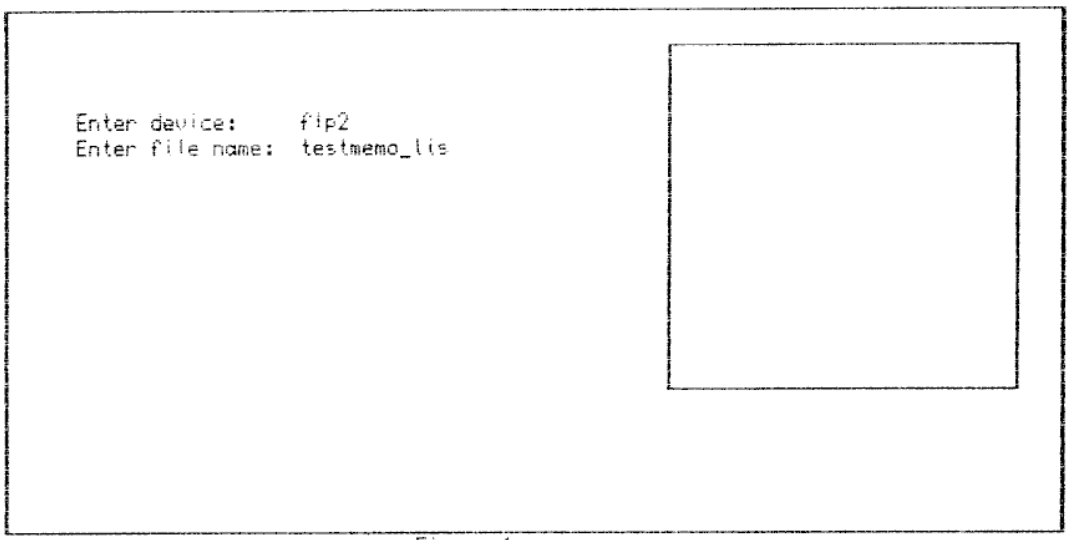

Figure 1.

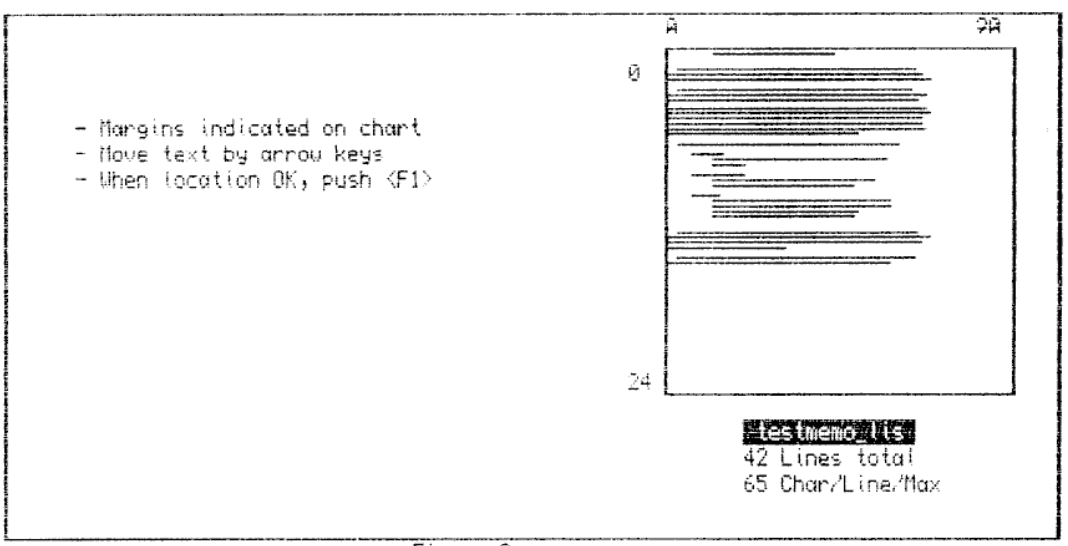

Figure 2.

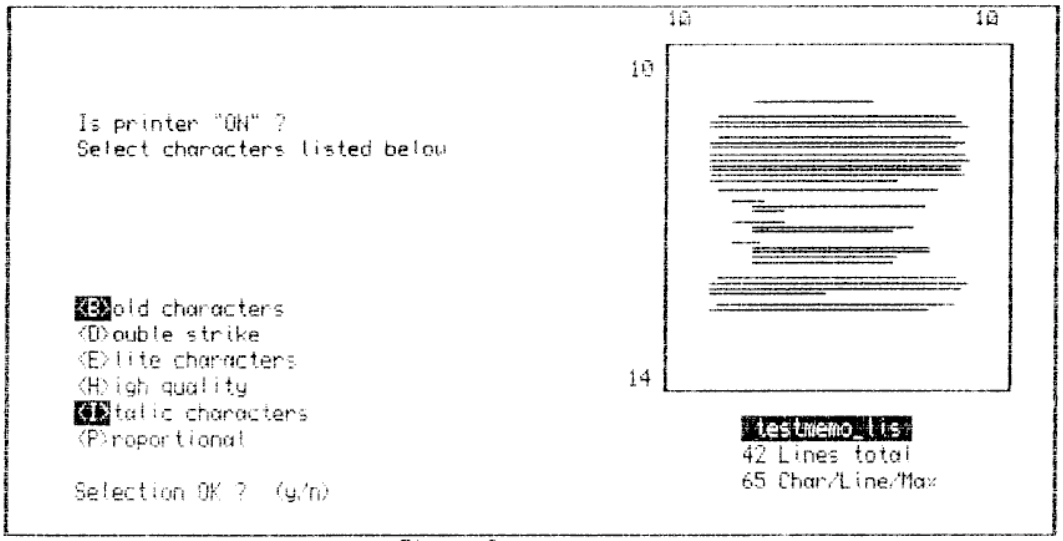

Figure 3.

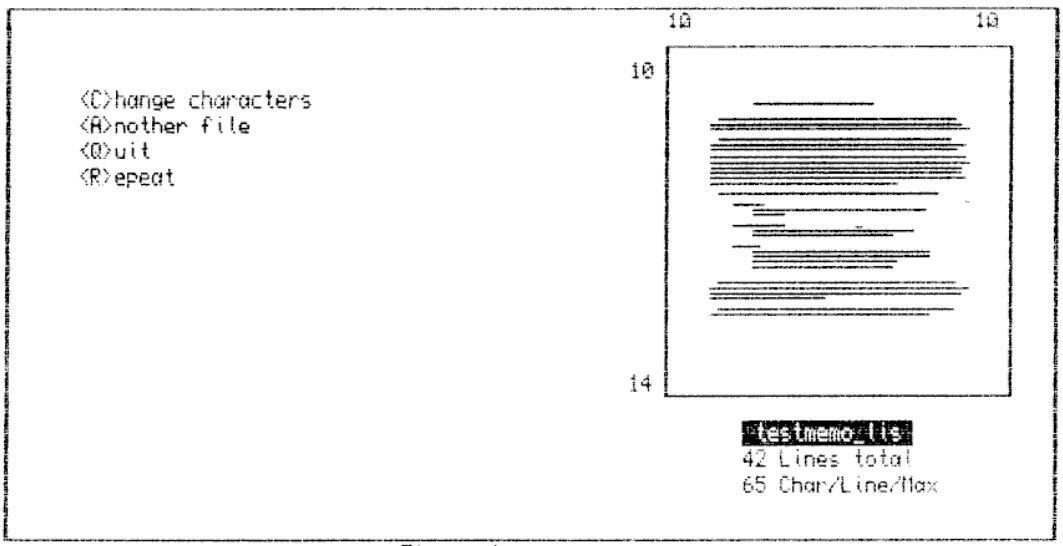

Figure 4.

INTERNATIONAL QL REPORT

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If you had been a subscriber during the last two years you would have received advanced information on the latest hardware and software developments to appear on the QL scene. Each issue contains over 40 (approx. A4) pages jam packed with the information you need, including advertisements from the major producers of QL/QDOS hardware and software.

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UPDATE MAGAZINE accepts want ads or requests free from its readers, for the following purposes only: for the sale or purchase of generic computer equipment (monitors, disk drives, printers, etc.) and for the sale or purchase of Sinclair or Cambridge computers, peripherals or software. No Atari, IBM, MAC, or similar computers allowed on this page. Enuff said.

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MENU-DRIVEN PRINTER_DAT SELECTION

Bob Hartung, 2416 N. County Line Road E., Huntertown, IN 46748

Some may have noted that a large part of the things I have written for UPDATE have been to enable single-key selection of programs or other functions from menus. From the first time I set hands on a computer (a ZX-80) I have had the notion that the user shouldn't have to do what the computer may easily be programmed to do. Not all programs I have seem to have been written with this in mind.

A case in point is the need to run the INSTALL_BAS program every time a new set of printer data is needed for the PSION suite of four or EXCHANGE. I have tried several other wordprocessors and spreadsheet programs for the QL as well as the PC and still prefer to use QUILL and ABACUS for most purposes. I would add my voice to those asking if someone might do an update on these programs while still retaining their best features.

The routine listed below allows the selection of any pre-defined printer data before loading one of the PSION programs. It is the result of my friend, Kenton Garrett, asking me to write a routine that would select different sets of printer data for each of the printers he uses with his QL system. It is written so it may be merged with my BOOTmenu program as given on page 22 of the Oct. 92 UPDATE. If you do not have that issue please enclose a SASE when you request me to send you a copy of the listing.

If you already have defined printer_dat on separate disks you may simply put the disk with the completed BOOT routine in flp2, the printer_dat disk in flp1, and enter COPY flp1_printer_dat TO flp2_newname_dat. "Newname" is the title as entered in respective pdat definitions. Note that the _dat extension is supplied by the menu routine and so is included in the disk file names but not in the menu titles.

To create new printer_dat files, LRUN INSTALL_BAS from flp1 and install to flp2, the drive your BOOT disk is in. After installing with F5, key CTRL SPACE to break into the program. Use COPY flp2_printer_dat TO flp2_newname_dat. Enter RUN to re-start INSTALL_BAS and repeat the above for each set of data. To use with EXCHANGE see the line 725 REMark.

```
75 PRINT \" PROGRAM MENU (BREAK & AUTO 1
,1 to edit)"
8Ø PRINT #Ø;" Key:  A-Z for other menus
  Ø-9 or a-z to LOAD file   F1 to select
 new printer_dat    £ to set: ",,,," B:
Last menu"
85 REMark Omit line 165 & save copy of l
ines 1-25Ø as Bboot.  Revise line 8Ø pro
mpt for Cboot . . . .
165 IF slc=232 THEN pdat
26Ø DEFine PROCedure pdat
27Ø MODE 4: DIM d$(36,18): d$(1)="LASTus
ed"
28Ø d$(2)="CITOH"
29Ø d$(3)="KXPallfonts"
3ØØ d$(4)="KXPprestige"
31Ø d$(5)="KXPcourier"
32Ø d$(6)="KXPsanserif"
33Ø d$(7)="KXPboldPS"
34Ø d$(8)="QLprinter"
35Ø d$(9)="EPSON51Ø"
36Ø d$(1Ø)="": REMark  Define empty d$(1
1) through d$(36) in lines 37Ø-62Ø as in
 line 36Ø
63Ø FOR j=1 TO 36
64Ø AT j-1-18*(j>18),2Ø*(j>18): PRINT CH
R$ (j+47+39*(j>1Ø));"=";d$(j)
65Ø END FOR j
66Ø PRINT \" PRINTER_DAT MENU"
67Ø CLS #Ø: PRINT #Ø;" KEY:  Ø-9 or a-z
to select printer_dat to be activated (i
n both flp1_ and ram1_)"\" Use AUTO 27Ø,
1Ø to edit menu display titles.  Do NOT
append _dat to menu titles."\' "Not Foun
d" error if _dat used in menu titles or
if misspelled.  Key ESC to quit.'
68Ø slc=CODE(INKEY$): IF slc=Ø THEN GO T
O 68Ø
69Ø IF slc=27 THEN MODE 4: GO TO 5Ø
7ØØ slc=slc-47-39*(slc>57)
71Ø IF slc < Ø OR slc > 36 THEN GO TO 63
Ø
72Ø IF d$(slc)="" THEN GO TO 63Ø
725 REMark For EXCHANGE, replace printer
_dat in line 73Ø with xchange_dat or re-
define as line 735 for both options
73Ø DELETE flp1_printer_dat: COPY "flp1_
" & d$(slc) & "_dat" TO flp1_printer_dat
: DELETE ram1_printer_dat: COPY "flp1_"
& d$(slc) & "_dat" TO ram1_printer_dat
74Ø DELETE flp1_LASTused_dat:  COPY flp1
_printer_dat TO flp1_LASTused_dat
75Ø MODE 4: GO TO 5Ø
76Ø END DEFine pdat
```

LIGHTNING S.E. and BOOT

by Paul Holmgren

Hello??, yet another little tip for the QL user.

One of the things my other Sinclair based computers taught me is that there is a certain sense of neatness and effective usage when you utilize a simple straight forward approach to get things done quickly.

With those ingrained habits, I still look for ways to do economical programming even with my QL.

I had a chance to evaluate "Lightning SE for the Gold Card" recently.

After using the Boot and Configure files of Lightning, my new disk looked like this:

1362/1440 sectors lng_TEXT_ext lng_GRAF_ext lng_MATH_ext BOOT

and the boot file created by the configure program:

```
1 REMark - CONFIGURED LIGHTNING BOOT FILE 2 REMark Do NOT use with other configured LIGHTNING systems 3 source$='FLP2_' 4 s=RESPR(33792) 5 LBYTES source$&'lng_TEXT_ext',s:CALL s 6 LBYTES source$&'lng_GRAF_ext',s+22360:CALL s+22360 7 LBYTES source$&'lng_MATH_ext',s+26676:CALL s+26676 10 NEW
```

I ended up with 4 files, 3 separate parts of Lightning, and a boot program that loads and then calls each segment.

Is there is a better way? Line 4 of the boot program reserves 33792 bytes for the Lightning files to be loaded into. This is a single continuous memory area.

I loaded the "BOOT" program and deleted line 10. I then RAN the program. At the cursor prompt I then typed PRINT s. That is the start address of the code where "Lightning" resides.

I then typed SBYTES flp1_lng_code s,33792.

I then did a simple rewrite of the BOOT program to do a single LOAD of code that left me with the following DIR of the disk :

1362/1440 sectors boot lng_code

And the new BOOT program:

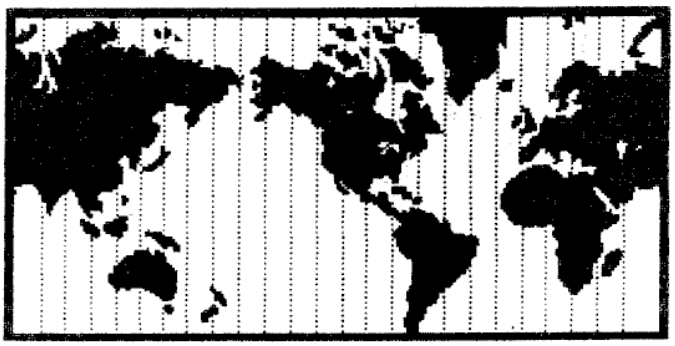
```
3 dv$='flp2_' : s=RESPR(33792) 5 LBYTES dv$&'lng_code',s:CALL s 6 CALL s + 22360 : CALL s + 26676
```

The calls to each of the selected parts of "Lightning" remained the same, but this way only 2 files are loaded. This is a step and time saving technique. It even cuts down on the daily wear and tear on disk drives.

This works on any program that is divided into parts that I have run into. I hope this is of help to you!

Editors Note: This technique applies to other programs as well and does not require S. E. versions or a Gold Card.

SINCLAIR WORLD GAZETTE



World News & Information 1.0

Sinclair User Magazine

Many Sinclair owners around the world are still not aware that Sinclair User Magazine is still in publication. Its reader focus is young first time computer users and game players. The magazine is published monthly and runs about forty pages per issue. But, its most intriguing features is that each issue comes with a cassette attached to it containing "The Great 8".

The Great 8 consists of at least eight programs ranging from games to music to utilities. The August and September issues included ICON GRAFIX 48K, STARSHIP QUEST, NIGHT RUN - CEASE FIRE II and the SPRITER hacking program.

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Keep an eye out for more tidbits regarding Sinclair User Magazine and other Timex/Sinclair and Sinclair publications from around the world.

If you have any information about Sinclair publications, please send their address to:

SWG
1284 Brushwood Ave
Cincinnati, Ohio
45224

Please send a LSASE for replies!

The Hobbit Arrives In The UK!

What is "The Hobbit" you say? Well, it not only is the latest and greatest import from Russia (aKa the former Soviet Union), but it is also the latest Sinclair Spectrum Clone!

Sinclair User Magazine featured a full page article on The Hobbit in its August 1992 issue.

The Hobbit is a fully compatible 48K Spectrum. But in reality, it has 64K RAM and 64K ROM in order to include extra features, such as running 3.5" and 5.25" PC formatted disKs and drives. The Keyboard is standard QWERTY with both Roman and Cyrillic characters on the Keyboard!

Spectrum software can be LOADed via cassette and then SAVEd out to the optional disk drive. Besides a DOS, The Hobbit also has fully compatible Spectrum BASIC, FORTH and CP/M on board. (Note: the disk drive is needed o run/use the FORTH language).

Some of the extended features includes keyboard macros, auto-numbering and renumbering and networking commands. The network interface allows several Hobbits to be linked together even with PC's! Below are some Hobbit statistics from Sinclair User:

Microprocessor	Zylog Z80
Speed	3.5 Mhz
RAM	64Kb
ROM	64Kb
Network Speed	56Kbits/Sec
Price:	
CPU	£79.00
5.25" DisK	£59.00

Available from:

ADB Russian Services
17 Stortford Road
Great Dunmow
Essex CM6 1DA
[Phone: (0371) 876 340]

Write/Phone for Availability!!!!

INTERNATIONAL QL REPORT

The Definitive Information Source

Published by SeaCoast Services

AN OPEN INVITATION TO ALL QL/QDOS USERS

MIRACLE in NEWPORT

IQLR is sponsoring a QL get-together to be held in Newport, Rhode Island, USA on the 5th of June 1993. The festivities will be at the Salvation Army Building on Memorial Boulevard between the hours of 1300 and 1800 (1 pm to 6 pm EDST), after which, an optional DUTCH TREAT DINNER (you pay for your own meal) will be held at the Newport Beach Club.

Expected to attend and demonstrate their latest developments are *Stuart Honeyball of MIRACLE SYSTEMS, Frank Davis of MECHANICAL AFFINITY, Bill Cable of WIND & WOOD COMPUTING*, also planning to attend (not yet confirmed) are *Freddy Vachha of DIGITAL PRECISION, Tony Firshman of TF SERVICES*, and the outside possibility of *Dilwyn Jones of DILWYN JONES COMPUTING*.

There will be ample time for the demonstrations, time to browse the various tables (buy QL stuff), and to also include a question and answer period. We promise it won't be as rowdy as the Question and Answer sessions of the House of Commons.

Come and meet the people responsible for the continuing success of the QL/QDOS; renew old friendships, start new ones, but above all come and have a good old fashioned QL good time. Bring the whole family, Newport is famous for its family orientated activities, and there are plenty of accomodations within minutes of the show.

To pay for the costs incured, it will be necessary to charge a modest admission fee; pre-registration is $3.00 per person, at the door registration will be $5.00 per person. All those in attendence will receive a name badge to help identify everybody.

ADDITIONAL INFORMATION IS AVAILABLE FROM: Bob Dyl at IQLR, or call 401-849-3805

15 Kilburn Court, Newport, Rhode Island 02840, USA

CABLE COLUMN

By Bill Cable

ARCHIVE SERIES
PART 12 : ENTERING PROCEDURES USING THE ARCHIVE PROGRAM EDITOR - FIRST GROUP

This series now begins formal programming in ARCHIVE. I have provided many one liner type-in examples in the past as a way to illustrate how some of the commands work but ARCHIVE is not designed to be used that way. The commands are just the building blocks of a more complex structure called a procedure. ARCHIVE is a procedure based language like SuperBASIC.

What is a procedure? It is just a user defined collection of ARCHIVE commands and functions (and perhaps calls to other procedures) that accomplishes a task. The procedure is given a name and it is executed (called) when the procedure name is invoked. Procedures are similar to functions or subroutines in other languages. They work similar to GOTOs in older version of BASIC where a block of code could be jumped to and returned from. Procedures have several advantages over the GOTOs. First the name of the procedure, if wisely chosen, is descriptive of what the procedure does That helps us conceptualize what is being done much better than line numbers. It makes it possible to read a program and actually understand most of it. Second procedures can be developed and debugged independently and then be merged into whatever programs need the procedure. Third a procedure can call itself. Often certain programming tasks have a simple solution if a group of statements can be used over and over (recursion) until a condition is met. Often we want our procedure to be passed information to work with. This is done by putting a semicolon after the procedure name and listing the variables (arguments) to be passed separated by commas. If we define our procedure in this way the arguments must always be included when the procedure is called.

What is a program in a procedure based language? A procedure is a collection of commands,functions, and procedure calls with a name and specific task to accomplish, a program is a collection of procedures stored in a file (which has a name) that work together to accomplish a more complex task.

What is a function in the ARCHIVE language? Functions are much like procedures but there is only a fixed set of system defined ones provided and they always have an argument list in parenthesis (). They might be thought of as useful canned procedures always available to us.

I have explained previously that ARCHIVE supports 2 kinds of variables much like BASIC : Text variables which end in a '$' and can hold up to 255 characters and floating point (numeric) variables which don't end in '$' and have up to 14 significant digits. ARCHIVE does not support arrays. Variables must be initially defined before they can be used and there are 3 ways this can be done :

1. LET command : let a$ = "Hello" : let bet = 543
2. LOCAL command : local a$,bet
3. In procedure definition : proc tally_up;a$,bet

Variables can be global (available everywhere) or local (exist temporally within a procedure). They are local within a procedure if in the procedure definition or in a LOCAL command within the procedure otherwise they are global.

We will continue learning about ARCHIVE by entering and playing with a series of procedures that can be saved and merged into programs as needed. These handy procedures deal primarily with displaying information to the user and prompting for information from the user. By having these standardized procedures for interacting with the user it will be much easier to construct the more complex programs I will introduce later.

BASICS OF THE ARCHIVE PROGRAM EDITOR

After you start ARCHIVE you are in command mode and you see the command prompt '>'. These are the ARCHIVE commands relating to the program editor available in the command mode :

Start the editor	edit<ENTER>
Load procedure(s)	load "{}*name*"<ENTER>
Save procedure(s)	save "{}*name*"<ENTER>
Start a loaded procedure	*name*<ENTER>
print loaded procedures	llist<ENTER>

where {} = device (flp2_,mdv1_. etc)

When you save procedures to a file they are in ASCII (text) form which can be edited with other editors (I like THE EDITOR). There is a binary form 'save object' and 'load object' which will be discussed later.

After you start the ARCHIVE program editor (by typing : edit<ENTER>) you are in the program edit mode. The program editor is like a single purpose word processor designed to only create and edit ARCHIVE procedures. I think it is one of the slickest programming environments around. If it only had a search and replace it would be complete. If no procedures are currently loaded you will be asked for a name of a procedure to create otherwise all loaded procedures are listed alphabetically on the left side of the screen. The procedure being edited is in bold face and its lines appear on the right. You change which procedure to edit by pressing <TAB> or <SHIFT><TAB>. You choose your edit location within the procedure's lines (on the right) by the up arrow and down arrow keys. You do your editing at the bottom of the screen. It very convenient and much easier than SuperBASIC program editing. The editor automatically indents conditional statements and loops for easy reading and debugging.

The program editor has its own set of commands and special keys. They are :

Exit the editor	<ESC> or <ESC><ESC>
Create procedure	<F3>n<ENTER> name<ENTER> {enter lines of procedure} <ESC> {when done}
Move to a procedure	<TAB> or <SHIFT><TAB>
Move to a line	<up arrow> or <down arrow>
Insert new lines	<F4> {now insert lines} <ESC> {when done}
Edit a line	<F5> {edit line as desired} <ENTER> {when done}
Cut (Delete) line(s)	<F3> c {up or down arrow for more} <ENTER> or <ESC> to abort
Paste (copy) Lines	{Cut them as above} {move to procedure & line to put} <F3> p <ENTER>
Delete a procedure	{Move to procedure to delete} <F3> d <ENTER> {its gone}

PREPARATION

Start ARCHIVE in your customary way so you see the ARCHIVE command prompt (>). We will not need to access a database. You will start the editor and immediately begin entering the procedures listed below. Some mistakes will cause the editor to not accept a line and you will have to spot the mistake and correct it (like unmatched quotes). Type in as many as you wish and exit the editor and save them to a file (call it group1) and save a second copy somewhere else.

PROCEDURES TO ENTER - GROUP 1

```
proc acky;line,m$
rem prints message (m$)  at line & waits for acknowledge
liny;line: print m$;"."; tab 40;" Press <ENTER> : ";
input i$:liny;line
endproc
proc defy;line,m$,d$
rem prompts m$ at line and suggests d$, \ = null
liny;line: print m$;" [<ENTER> if '";d$;"'] : ";:inp: if ans$=""
let ans$=d$: endif : if ans$="\": let ans$="": endif
print at line,len(m$)+1;" : ";rv$;" ";ans$;" ";rv$; tab 80;
let ans$=lower(ans$)
endproc
proc heady;i$
rem clears screen and makes makes heading of i$
paper sp: cls : paper hp: ink hi
print rept(" ",240); at 1,1;i$;
paper sp: ink si: print at 4,0;
endproc
proc inp
rem inputs global variable ans$ in reverse screen color
print rv$;: input " ";ans$;" ";: print rv$;
endproc
proc inpy;line,m$
rem prompts m$ at line and inputs (through inp) ans$
liny;line: print m$+" : ";:inp: let ans$=lower(ans$)
endproc
proc key_choice;i,i$,j$,k$,l$
rem prompts i$,j$,k$ at line i, accepts a single key input
rem if in l$ list, if ke=1 need enter if ke=0 don't
let ans$="": while not instr(l$,ans$) or len(ans$)<>1
print at i,0; tab 80; at i,0;i$;ke$;j$;" => ";k$;" : ";rv$;" ";
if ke: input ans$;: print " ";rv$;: let ans$=lower(ans$)
else : let ans$=lower(getkey())
if code(ans$)<32: if code(ans$)=2: let ans$=""
else : if code(ans$)=3: let ans$=""
else : if code(ans$)=4: let ans$="": else : if code(ans$)=5
let ans$="": else : let ans$="": endif : endif : endif : endif
endif : print ans$;" ";rv$;: endif
if not instr(l$,ans$) or len(ans$)>1: if ke
let ans$=" then <ENTER>": else : let ans$="": endif
print at i,0;rv$; tab 80;
acky;i,"Press the SINGLE KEY for the desired action"+ans$
print rv$;: endif : endwhile
endproc
proc liny;line
rem clears line at line
if line: print at line,0;tab 80;: print at line,1;: else : print :
endif
endproc
proc msg;line,m$
rem prints pausing message m$ at line
liny;line: print "{"+m$+"...}";
endproc
proc setup
rem sets needed initial values ** must be run first **
let rv$=chr(26) :let hp=3:let hi=1:let sp=5:let si=1
 let ke = 1 :let ke$ = " KEY+ENTER "
endproc
proc yorn;line,m$
rem prompts m$ at line returns y or n in ans$
let ans$="": while ans$<>"y" and ans$<>"n":liny;line
print m$+" [ y/n ] : ";:inp: let ans$=lower(ans$): endwhile
endproc
```

There is not much space for examples but try these :

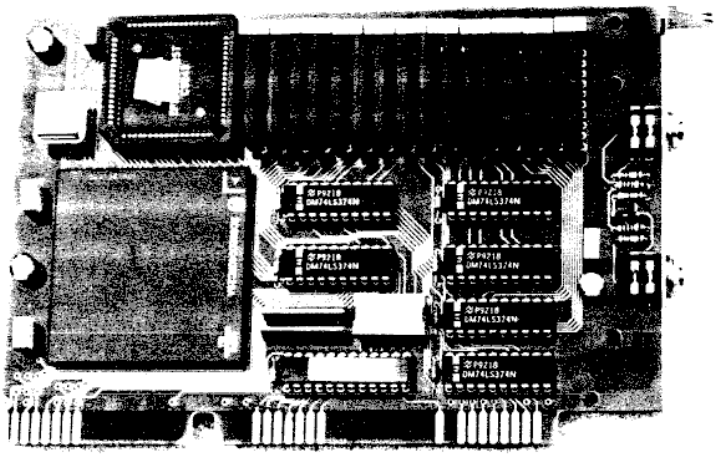
```
mode 0 : setup<ENTER>   always initialize setup first
yorn;10,"Are you happy" : print at 18,1;ans$<ENTER>
defy;12,"Your favorite computer","QL":
   print at 20,1;ans$<ENTER>
key_choice;14,"","Device","Mdv  Flp  Ram  eXit","dfrx"
   :print at 22,1;ans$<ENTER>
```

Notice that global variable ans$ is often used to hold the procedure result. Always run setup when using these procedures to initialize needed global variables.

Until next time when we have more procedures to enter and more extensive examples Happy Archiving!

EXTRA! EXTRA!

THE LATEST
QL SCOOP!!!!



THE MIRACLE FROM MIRACLE--QXL

Those of you who make it to the QL show on June 5, 1993 at Newport, Rhode Island, will be among the first to see the newest hardware advance for the QL from Miracle Systems, prominent English hardware house run by Stuart Honeyball. For those who do not, they will still have a chance to purchase this latest technical advance from either Miracle Systems in Europe, or from Mechanical Affinity in the Americas.

Just what is a QXL-Card? It is a PC Card that will work on any IBM PC/XT or above computer and the clones of these machines. This means that you can plug it into an IBM and with the running of an IBM disk supplied with the card, run the QL board as an application. This gives you a thoroughly updated QL compatible machine. We are told that programs that run with the Gold Card should run with the QXL. The operating system, SMSQ, which is a derivative of SMS-2 is authored by Tony Tebby of QRAM, QPAC 1 & 2, and Tool Kit 2 fame. It is said to be fully QDOS compatible. Also on disk is SBASIC (I assume this is X-BASIC, an improved and compatible SuperBasic compatible interpreter).

The initial card will support only MODE 4 and MODE 8, but later releases (perhaps finished by June) will support also the improved PC graphics, such as EGA, VGA and perhaps SVGA. You will need an EGA or VGA monitor on your IBM to use this card in any case. This is great because to many people the only reason they had ever left the QL was either graphics capability, sophistication of software, or lack of a hard drive. Only those who either fell prey to peer pressure or never really learned much about the QL would otherwise have left it (my personal point of view) for a machine as clumsy as the IBM in its native state.

The card can be purchased with from one to eight megs of memory, runs at 20 MHz on a 68EC040 Processor (which puts it at about 5-8 times the speed of the Gold Card and 30+ times the speed of the regular QL). It will have two standard working QL network ports, no microdrives and will be able to access the serial ports, mouse, parallel port and hard and floppy drives of the IBM. The price will vary with the amount of memory you wish on the card, which can be bought with only one meg and upgraded by you at anytime. US$ cost will run approximately from $400 to $675, depending on the value of the English Pound.

Thanks on this data goes to IQLR, The RamTop (Chris Fowler) and Stuart Honeyball of Miracle Systems.

QL to IBM Transfers

Since many of you own QLs and IBMs, or have friends who own IBMs, you may need to transfer documents between the two. There are programs to do this, but certain requirements must be met. The QL and IBM must have the same size disk drives. They also must be of the same density -- at least the programs I tried from Quanta had this requirement. I could never get the two to match. Even after I bought a 360K, 5¼" drive for the QL it garbled the document. Big pieces of the story would come over fine, but the rest would either be lost or put in the wrong position.

At this time I should have purchased DiscOver or Multi DiscOver. I believed either of these would have done the job, but some doubted that they would work with my Delta Disk I/F. (I still think they would work, but the delay allowed me to find another solution.)

Bob Gilder (in the Sept/Oct, '92 *International QL Report)* diagramed a serial cable that was different than the one I had made for my modem cable (which had been diagramed in QLINK's manual). It used only six conductors, cross connecting a 25 pin, male connector to a 9 pin, male connector in the following manner:

```
25 Pin                  9 Pin
#2  <----------------> #2 TXD
#3  <----------------> #3 RXD
#5  <----------------> #5 CTS
#6  <----------------> #9 DSR
#7  <----------------> #7 SG
#20 <----------------> #4 DTR
```

Since I worked as a data cabler (at the time) there was no trouble finding 20' of twisted, 4-pair, scrap cable. We threw away hundreds of feet a day. Radio Shack had the connectors, so the total cost was about $4.00 for the finished cable. (I felt the hoods were unnecessary, since the cable would only be used occasionally.) I really didn't think it would work so I didn't want a big investment.

I already owned a null modem for the IBM so I connected that to the 25 pin connector. (This may not have been necessary if I had used the QL's ser1_ port, instead of ser2_ -- I don't know for sure.) Before I connected the computers I exported one of my stories from a QUILL_DOC to ASCII, using XCHANGE's EXPORT feature and saved it to disk. I then loaded QLINK into the QL and ProComm into the IBM (both are shareware programs). ProComm was then set to receive an XMODEM transfer, then, moving across the room to the QL, I began transmitting the document, using the XMODEM protocol *without* CRC. I was shocked when it worked the first time. (I had intended to use XMODEM CRC, which I thought would be compatible with ProComm's XMODEM, later tests showed that this would not work.) I was definitely lucky.

I later found that by using TEXT87 PLUS4 I could save my stories as ASCII text with only Line Feeds at the end of each paragraph (XCHANGE's ASCII option exports text with Line Feeds and Carriage Returns after each line). Then using QLINK's FILTER utility I could change these Line Feeds (LFs) into Carriage Return/Line Feed combinations. Once transferred to the IBM these documents could automatically be reformatted in any way I wished using WordStar (since WordStar's basic format is a LF/CR combination after each paragraph). This was an unexpected bonus.

After transferring several stories from the QL to the IBM, I decided to see how effective this whole procedure could be. Using Text87 Plus4, I copied a story to itself until the QL's memory ran out. It turned out to be over 40,000 words (about half the size of a "historical" novel). I then Exported this document into an ASCII file and changed the LF's into LF/CR combinations using QLINK. All the other serial transfers had been done at 1200 baud, but I decided to try this one at 96,000. It took about 10 minutes to get this document to the IBM and another 5 minutes to reformat the whole story into double column, justified text.

I don't know why everything went so smoothly, but I'm not complaining. If anyone would like more information about the configuration of my computers, or help in building a cable, let me know.

Ron Blizzard -- POB 54 -- Weiser, ID 83672

THE SIGN OF QUALITY

Amstrad 464/664/6128

Sinclair Spectrum

48/128+2/2A/+3

PRISM PD

13 Rodney Close
Bilton
Rugby
CV22 7HJ
England (UK)

Update Magazine PO Box 1095
Peru
Indiana
USA 46970

23 2 1993

Dear User Group

First of all let me introduce myself. My name is Martyn Sherwood, and I run what is fast becoming the leading British PD suppliers, and we are regularly advertised in the 'Your Sinclair' magazine.

Prism PD was set up 1 year ago, and we have a good following of regular customers and contacts. As you will see from the list supplied, we cater for all Spectrums and have an extensive range of titles on offer.

I have just read about the Timex-Sinclair computer in the new issue of 'Sinclair User', which gave your user groups address. I am very interested in finding out a little bit more on the US market for this machine. If there is a Spectrum emulator for the Timex in your group then perhaps it will be possible to arrange the swopping of software, & vice versa if you have an emulator for us Speccy owners to run Timex software. It was mentioned in Sinclair User, that the magazines' American contact, Bob Shade who runs a photography outfit in Philadelphia, uses a Spectrum emulator on his Timex, so I don't see why this principle cannot be reversed.

Prism PD is constantly in touch with the continental PD scene and receives new demos all the time from GERMANY, POLAND and other European countries and are proving VERY popular, some of which improve the Spectrum graphics!. We also have a bi-monthly magazine exclusive to club members, so any info on the history of the Timex etc would be appreciated.

We look forward to hearing from you as Prism PD is determined to be at the front of an international PD exchange of software.

All the best for 93!

Martyn Sherwood

PLEASE READ ME: £2 for any 12 titles. Send a tape (not the cassette case), m'drive cartridge, 3" disk, +D 3.5 disk, with your name on, inside a jiffy bag which can be re-used by us. Orders paid by cash / postal orders sent in 6-7 days, or allow bank clearance 7-10 days Delays of 3 or more weeks, will be due to system failiure - rare but possible! If your order weighs more than 100g then add 50p for P&P. Please note underlined titles need the multiface 3. Orders payable to MARTYN SHERWOOD.

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Example of digitized TV picture:
Christine (Neighbours)

SPECIAL ART PACKS, NOT 3"disk

1 Dear John, 2. Star Trek, 3. Cheers, 4. Cagney & Lacey, 5. Shakespears Sister, 6. Bananarama, 7. Duran Duran, 8 Ultravox, 9. Neighbours, 10. Eastenders, 11. Pet Shop Boys

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SW2 PAGE SYSTEM WORD PROCESSOR - also acts as a database.

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GAMES

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1 Spectrums / Hardware, 2 Office & Business, 3 Sports, 4 People, 5 Frames & Borders, 6 TV Celebrities, 7 Party Time, 8 Music, 9 Transport, 10 Announcements, Cadabra 1, 2, 3, (3 titles of ported IBM graphics.

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video digitizing

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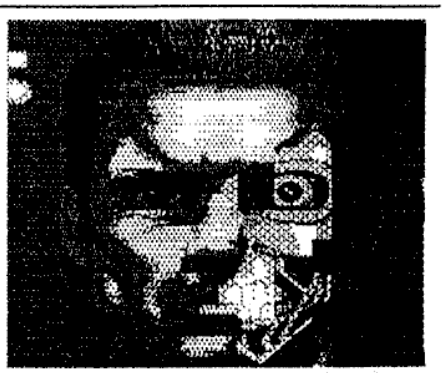

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WHAT'S NEW FOR THE QL by E.P.Wannum

Having just got back from New York, from a Mental Health Conference, I decided to rest up by reviewing, at least briefly, some of the new software and hardware I have picked up the last three months. There is so much new stuff coming out these days that it makes a poets heart want to sing. Alas to that matter as I have not yet talked Carol and Frank into allowing some of my poetry to grace these learned pages.

First of all, I let Frank talk me into replacing the 8049 chip in my QL with a HERMES chip. I had on occasion had some keyboard bounce. It is just plain not there anymore. I had tried another anti-bounce chip about three years ago, but never liked the feel of it. This time it was different. That was only the first improvement I noticed. Many of you will remember the Freeware MDV that Frank Toemay of Quantum Computing gave away to customers? A rather good graphics display, but super annoying on the sound, and I never found out how to turn down the sound or just plain turn it off. I still cannot turn it off, but with the HERMES, the sound has softened. It makes the sound capability on the QL closer to that we found on the Spectrum. Thanks to who ever came up with that idea. The next thing Frank had me try out was using my modem, at 300 baud, without a Modapter. It worked! No dropped characters. I borrowed a high speed modem that ran at 9,600 baud, and used it with QualSoft Terminal (I will get around to more on that shortly) and experienced no problems what ever. I am told by the manual that it is good upto 19,000 baud. Now all I need is for someone to invent a fax machine and software for my QL so that I can take full advantage of this capability. The HERMES can do 19,200 baud.

What can I say bad about the Hermes chip? Nothing. I can however say a bit about what it is supposed to be capable of that I have not had a chance to try out. When the latest version of MINERVA is finally released (1.96 or above) it is supposed to allow you to multi-task out of each of the two serial ports. As it is, even without that, I found out that for the first time I can set both of my serial ports at different baud rates. I can now have my Serial Mouse running at 1200 baud and my printer running at 9600 baud. I can also do the same with a high speed modem and printer. Nice, huh? It is supposed to also do away with INT7 problems that the QL had, but that is something I was unaware of so can not comment on. When someone tells me just what the INT7 problem was, or just how serious it was,I will try to remember to let you know. Basically, I feel that outside of a Gold Card, the Minerva and Hermes combination is the best hardware upgrade for the QL available at this time. Both of these are available from TF Services in the UK, and from Mechanical Affinity in this hemisphere. I paid out $43 for the HERMES and $62 for the latest MK1 Minerva from them.

I spoke about the Serial Mouse software. I saw in a club newsletter recently where someone tried just plugging in an IBM mouse and loading software and assumed it did not work. Whoa,a minute, if I got that all right. You can not just load and insert the mouse. Read all of the directions. You have to rewire or make a little set of jumpers for the serial port in order to use the IBM mouse. They are not pin compatible. And if you are using an American QL, then you need to use the German

wiring setup. If you use the English wiring it will not work. Also pay close attention and load the German version of the software so that the wiring and code match up. Last of all pay close attention to what is said about the Microsoft mouse and all will work. I hope this helps. The best thing to do from the start is to avoid the Microsoft mice and stick with a plain old generic serial IBM compatible mouse.

I spend a lot of time traveling as a psychologist, and am home so seldom I have not bothered to have a home phone, only at the office. This kept me away from using a modem at home for quite some time. At times for work I have had to use a modem or a terminal in my line of work. Years ago I used a 2050 with MTERM2 on my TS2068, and Commodore modem on an old VIC-20, but not for some time. I had gotten a little rusty. I had decided that I now needed a modem and the appropriate software to allow me to make good use of my HERMES and MINERVA, so I called up a friend who loaned me copies of QCODE MD V5.1 and QLTERM 2.0. I tried out both, and while I did find that both were quite adequate for home use to friends and local bulletin boards,neither was full featured enough for my uses on the road, or for use with a large university (Indiana University) or government medical database. So, I called up Frank Davis, of Mechanical Affinity, and told him to send me the best terminal program he could get for the QL. In return for $45 he sent me a copy of QuaLsoft QL Terminal. It is advertised as a Viewdata and Scrolling Terminal emulator for the Sinclair QL, quite a mouthful.

It came in a nice binder, in a 3 1/2 disk, with a nice looking user manual. The print was just a wee bit smaller than I would have liked in the manual, but clear enough to read. In the U.K. this program can be purchased from TF Services, and in North America it is available from Mechanical Affinity. Once you are somewhat familiar with the program, the manual may not be all that necessary, as the program has on line help built into the program. That is a plus point.

The program supports Hayes compatible modems, those that use the Modaptor from Miracle, Tandata Qconnect, Astracom, Astracom Hayes, auto-dial modems, manual dial modems, Miracle QL Modem, and others if you know how to set the correct settings. You can (for autodial modems) keep a list of dialing services or friends that you commonly contact. It is set up to handle from 75 to 9600 baud and can handle split baud rates, such as 1200/75. That is not a feature needed much here in North America these days (split baud rates).

The program can multi-task with QRAM, QPAC2, or Taskmaster. I am not sure about QTOP or Qkick, as I only know about these programs, but have not seen or used them. The menu of the program allows you to customize it if you will be multi-tasking. It has a built in simple text editor,which can be of great help when dealing with e-mail. Terminal emulations include Prestel, VT52, VT100, ANSI.

You can do a dump of screens to a printer or to disk or MDV. You can also upload or download files, programs, etc. When uploading or downloading the program allows for a buffer of upto 16K, as your memory allows. Xmodem is of course included in this part of the program.

The program is the best I have seen for the QL, but the manual is not the best organized. The manual has all the data there, just not in a logical manner. Still a good buy.

Z 88

Appendix D - Glossary of terms

Application - A program set up according to the appropriate machine conventions.

Bank - 16K chunk of memory, always on a 16K boundary in the logical address space.

Binding - this refers to switching a bank to a segment or to switching a file device to an particular stream with the CLI.

BLINK - the name given to the Z88's gate array chip. The chip handles the screen, serial port, keyboard, memory switching, interupts etc.

Card Manager - this refers to the code which deals with inserting and removing ROM cards. The basic rules are that all interchange should be done from the Index and that the machine is switched ON. If an application is using a ROM card then the card's slot is displayed in the next to the application name in the Index window. RAM cards can only be inserted, never removed. EPROMs can be inserted and removed at most times, but obviously not while the Filer is actively reading or writing slot 3.

CLI - Command Line Interpreter. This is used to simulate the keyboard and to rebind streams.

Director - synonym for 'Index' (the name used for it while much of the code was being written, hence 'dc' calls not 'ic' calls).

DOR - node in tree structure used in applications and the RAM filing system.

Explicit Filenames - a filename which includes the device and root directories. For example "queries.pip" might become ":RAM.1/office.dir/queries.pip"

Extension - up to three letters after the filename, usually used to classify the file. eg. you might add .pip to all your PipeDream files to aid identification.

Filter - conceptual 'object' (actually a set of routines) which perform transformations in a byte sequence. Also see Printer Filter.

Handle - A handle is a 16 bit value, usually returned in IX, used in file-like operations (eg. files, filters etc.) to direct input and output. For example, a handle is returned when a file is opened and is subsequently used whenever the file is accessed. A file can have several handles associated with it and attributes like the sequential pointer into a file are associated with each handle and not with the file itself. There are a finite number of handles in the machine, initially around 100, and the current number available is reflected in the high word of the sequential pointer associated with a handle value of -1. (In BASIC PTR#-1.)

Logical address - Address which the Z80 CPU 'sees', ie. a standard 16-bit Z80 address. See also Physical address.

MOS - machine operating system. Also referred to as OZ.

Page - 256 byte chunk of memory, on a 256-byte boundary. This is the basic unit of memory on which the allocation routines operate.

Physical address - 24-byte address referring to an actual memory location (only 22 bits are significant, giving an addressing range of 4Mb).

Pre-emption - The suspension of a process, normally prior to the main body of a system call. See also Logical address.

Printer Filter - This is a filter controlled by the Printer Editor. It allows applications to use special printing effects by specifying filter codes and letting the filter generate codes appropriate to the printer actually in use.

Process- A particular instantiation of a program (normally an application).

Segment -
1) One of the four 16K portions of the logical memory map.
2) One of the portions of a filename separated by '/', ie. a file or a directory name.

Slot -
1) One of the three physical holes in the front of the machine, which can accept a RAM, EPROM or ROM card. The internal memory of the machine is thought of as Slot 0.
2) The transmission frame for a character of data in the serial system. ie. the byte to be transmitted plus appropraiate start and stop bits.
3) Concept used in PipeDream. Roughly approximates to a spreadsheet cell.

Stream - This is a communication channel with an associated handle.

Appendix F - Hardware Connections

The Z88 connects to external electrical devices by using the serial port, the card slots at the front of the machine and via the expansion port (situated below the ENTER key on the right hand side of the machine). Note that in some models of the Z88 the expansion port does not have a removable plastic cover and on these machine the expansion port edge connector is not gold plated. In the following descriptions signals postfixed by a bold **L** are active low signals.

The Serial Port

1 -	unswitched +5v at 10 uA	output
2 TxD	transmit data	output
3 RxD	receive data	input
4 RTS	ready to send	output
5 CTS	clear to send	input
6 -	reserved for future use	
7 GND		
8 DCD	data carrier detect	input
9 DTR	switched +5v at 1mA	output

Note: DTR is high when the machine is awake. The machine is always awake when the screen is active, but even if asleep the machine will wake every minute or so to carry out various housekeeping tasks, such as checking for alarms, and at these time DTR will go high. Pin 1 will show a signal if there is power available to the machine.

Z88MacLink Review

by Dave Bennett

I bought a Macintosh Classic in late 1991 to supplement my Sinclair collection of computers. Quite a few Mac to Z88 programs were uploaded in the GEnie Laptops Roundtable by their author Richard Haw. So I decided to buy a Mac and try them out. I also chose a Mac for ease of configuration compared to MSDOS or Windows.

I purchased Z88MacLink at last Summer's Computerfest in Dayton, Ohio. I had been using and continue to use terminal emulators on each machine to transfer files.

Z88MacLink consists of a Rom which goes in one of the Z88's three slots. There is a serial cable which connects from the Z88's serial port to the Macintosh's modem port. The package also contains a floppy disk with the Macintosh Z88MacLink Application.

The package is easy to use. Connect the serial cable. Choose Link from the Z88's main menu or press [] L. On the Macintosh double click with the mouse on the Z88MacLink Icon.

Now all operations are done from the Macintosh. You are presented with a window called Transfer. This contains two windows containing lists of files. All transfers are done from the left window to the right. You select from directories, subdirectories and Mac folders in the usual Mac fashion by double clicking on folders or selecting different levels of files from the menu on top of each window. If you want to change the direction of transfer click on the Drive button under each window. You can see all your Z88 files. The Z88 acts like another Mac disk drive albeit a very slow one.

The program also provides file conversion. You can convert between Pipedream and MacWrite word processing files. You can convert between Pipedream and Lotus WKS spreadsheet files. These formats were chosen because most Mac applications can read these files.

And you can convert between Z88 BBC Basic and Macintosh BBC Basic. You would have to purchase Macintosh BBC Basic probably from England.

There is a No Conversion option useful for transferring Ascii text files or for storing Basic files on the Macintosh Hard Disk. Ascii text on the Z88 and the Macintosh is exactly the same unlike some other computers. The Z88 and the Mac both use a Carriage Return for an End of Line character.

Pipedream to MacWrite conversions work fine in both directions. Although you can't transfer complex MacWrite files. Such as ones with large font sizes or graphics.

I could not get Pipedream - WKS files to transfer. I am using Microsoft Works 3.0. I can save in a WKS format. Then Z88MacLink does not recognize the file. It does not appear in the window. In the other direction Works can't translate the WKS file which was converted from Pipedream. Perhaps a different Mac spreadsheet would work better.

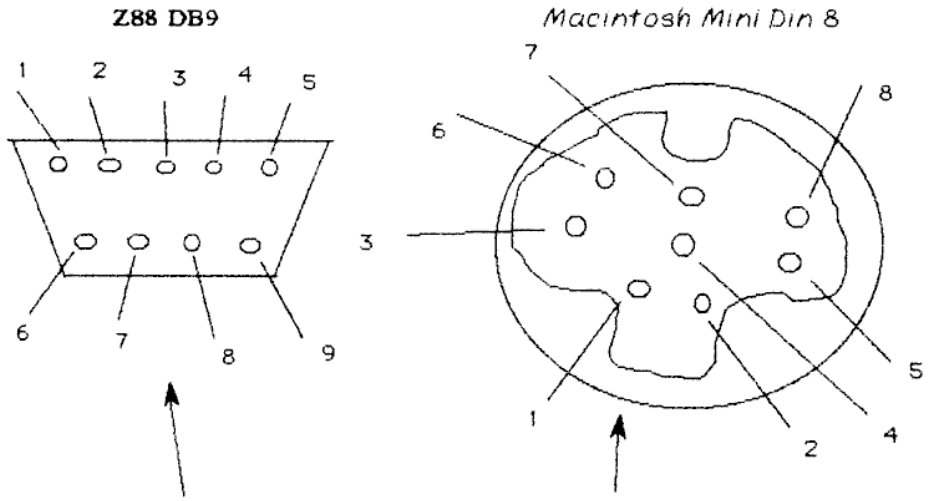
Z88MacLink is a very nice program. However I still use Terminal Emulators with XModem to transfer some files. The terminal programs transfer files much faster than Z88MacLink. Most of the time I will use Z88MacLink because it has a better user interface and it can transfer more than one file at a time. But if I have a larger file to transfer I will use the Terminal programs. I use ZCP on the Z88 and ZTerm on the Mac. ZTerm is a different program than the program with the same name for the Z88.

Overall I like the program very much despite the problems I mentioned. It is kind of neat working with your Z88 files in this program.

Z88 to Mac Files Available

All of these programs are available on GEnie or from myself upon request. They are all written by Richard Haw. ZX is a Mac to Import-Export transfer program. Z-Image enables the Z88 to display Mac graphics. ZHyper enables the Z88 to interface with the Mac Hypercard program. Mr. Haw also wrote the ZCP communications program and the ZFU file archiving program.

Z88 to Mac Cable



Z88 DB9			MACINTOSH Mini Din 8	
TX	2	→	5	Receive data -
RX	3	←	3	Transmit data -
CTS	5	←	1	Handshake out
GND	7	—	4	GND Signalground
DCD	8	←	1	Handshake out
DTR	9	→	2	Handshake in

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These disks contain at least one major piece of software written specifically for disk drive and are guaranteed to be worth the money. The rest of the disks are filled with various utility programs taken from the issues of UPDATE and a few surprises thrown in. Half of the money goes to the author and is meant to encourage new programs for the QL. Some of the programs take advantage of Tool Kit 2 by Tony Tebby. All are 20.00, except QLuster, which is $15.00; includes P & H, add $1.00 CAN.Available as 3 1/2 or 5 1/4 disks. Add $5.00 for mailing to other countries. We accept personal checks, company checks, money orders as well as International Postal Money Orders, but no charge cards. If ordering on MDV, then please include one that is already formatted, so we will know it will run on your QL. Due to the expense of MDVs this is necessary. If two MDVs are required we will state so in the ad.

1) HARTUNG UTILITY ISSUE DISK- Several excellent programs such as stand alone data base, Address, and QSO files. All are in Superbasic. Lots of hints and tricks for programmers. Requires some knowledge of Superbasic or a yen to learn. Recently updated by Bob Hartung. Address file can be used as inventory program. It can print out labels. Both screen or paper printouts can be by Alpha sort, or be by last name.

2) CABLE ARCHIVE ISSUE DISK- Contains six Archive programs along with Doc files to get you going on making use of the Archive programming language. Also has Tasket, plus Doc file, to give you multi-tasking on your QL (much cheaper than QRAM or Taskmaster). Included is Arithmetic, a Superbasic program for math, along with math drills. This is for both the advanced and beginner user and greatly extends the use of Archive. To order on microdrive send two formatted microdrives, too much for one!

3) QLUSTER ISSUE DISK by Al Feng- Ql utilities to unclutter your disks and microdrives. COPY, DELETE, FORMAT, PRINT, VIEW, plus extended use of some Tool Kit 2 commands. TK2 is required. These are TURBO compiled for speed. Multitasks and uses minimal key presses. Includes Fast-Disk and Vegemat2, a super clone making program. Also Snap Shot-a directory column or condensed printout program.

4) DOS EMULATOR COMPANION ISSUE DISK by Al Feng- Just released in Oct. issue. Makes better use of Solution, PC Conqueror, DisCover, XOVER, QLuster and scr_codes. If you are going to use the emulators, then check this out, you won't regret this buy.

5) QLuMSi DOS by Al Feng- a MSDOS simulator and front end program for the QL, also includes other programs by AL Feng for file management and cloning of programs. A Great Learning Tool

6) QL COMPENDIOM- a three disk collection of utilities for the QL, taken from the various short programs in UPDATE, plus file compression, decompression, E_Forth for the QL, C utilities such as FLEX and YACC. All for only $20.00 NEW THIS ISSUE!

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1) NEW! PAYROLL by Jim Bretz. Payroll record program for employers,for the Larken System. Allows for accurate processing and use of employee earnings and tax records, etc.

2) Bob Hartung DOSDEX UTILITY ISSUE DISK, a complete disk management group of programs for the Oliger Interface only. This includes Multi-Manager for file handling. This collection has recently been updated and expanded.

3) MAIL MERGE ISSUE DISK, Oct 87 and Jan 88 issues of UPDATE utilities added to fill out this disk. Includes a tutor program for the Mail Merge program, List Looker, Purity, J-Utilities and Extra Memory Utilities. Larken, Oliger and Aerco versions.

4) WIDJUP'S CAD PROGRAM, this will give you professional results from your TS2068 for computer aided design. Authored by William J. Pedersen, perhaps the NO.1 authority on the inner workings of the TS2068 This program can be used to create user friendly printed circuit boards, computer art or desktop publishing files It does not need expanded memory cartridges and is available in four versions: (a) Oliger for either IBM compatible printers or for the Olivetti Ink Jet. (b) Larken for IBM compatible printers or the Olivetti Ink Jet printer. Please specify version.

5) OLIGER DISK DRIVE BBS PROGRAM, this allows users of the Oliger interface to be able to operate a disk based bulletin board from the TS2068. The disk is also filled with many other Oliger disk routines and tips on using the Oliger System. Written by Paul Holmgren. Can use upto four DSQD disk drives.

6)The HYBISCUS ENSEMBLE, consisting of two separate, but complimentary sets of programs. A) Daisy.B6 Ensemble, and B) Udbm.B6 Ensemble. LKDOS only, $22 each or $36 for both. The best file and database available for Larken, by Bill Jones. The price remains the same on this one, no change. Wordprocessor included.

7) TS2068 Super Calc by Bill Jones. Available in both Larken and Oliger formats. Handles loans, amortization, savings and fixed investments, plus a calculator and all for only $15.

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